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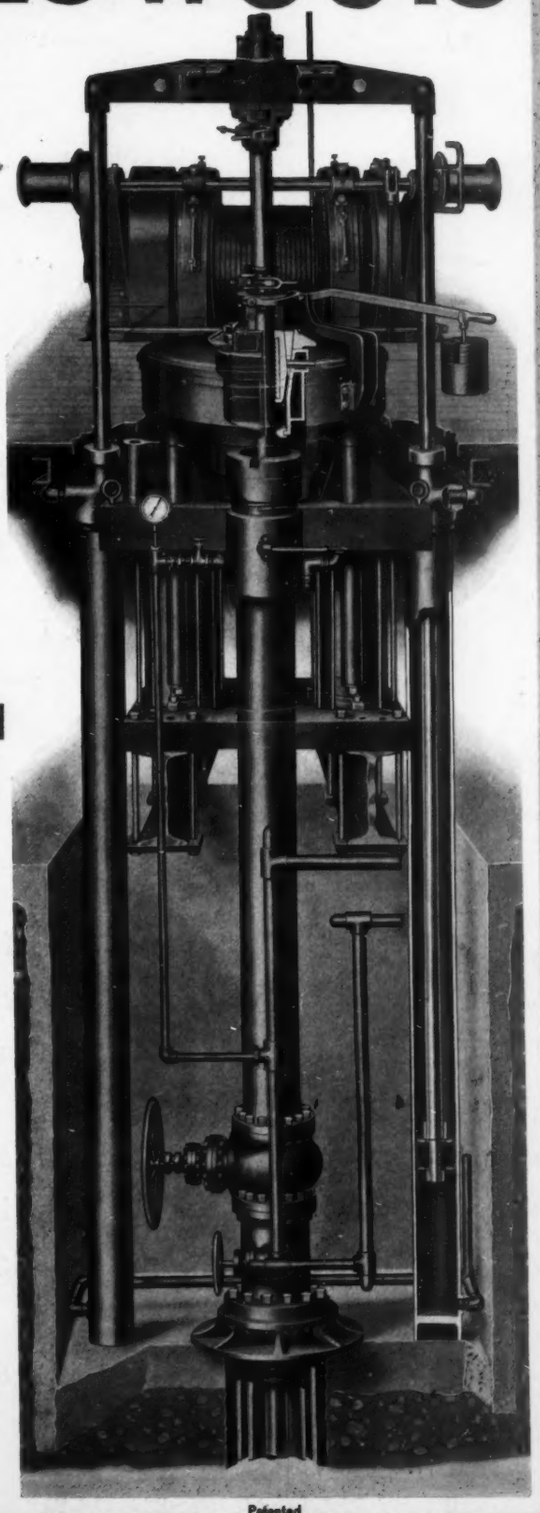

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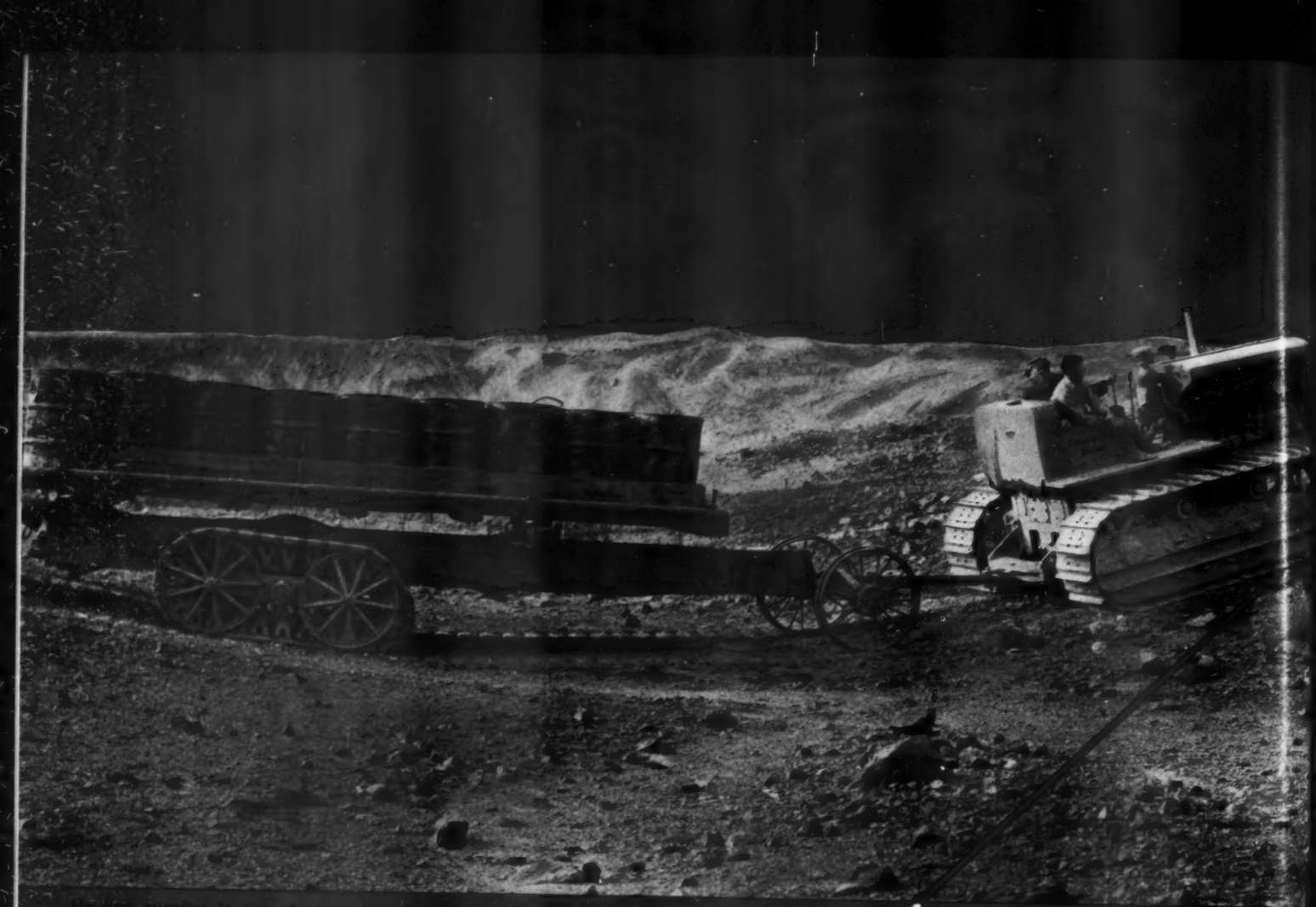

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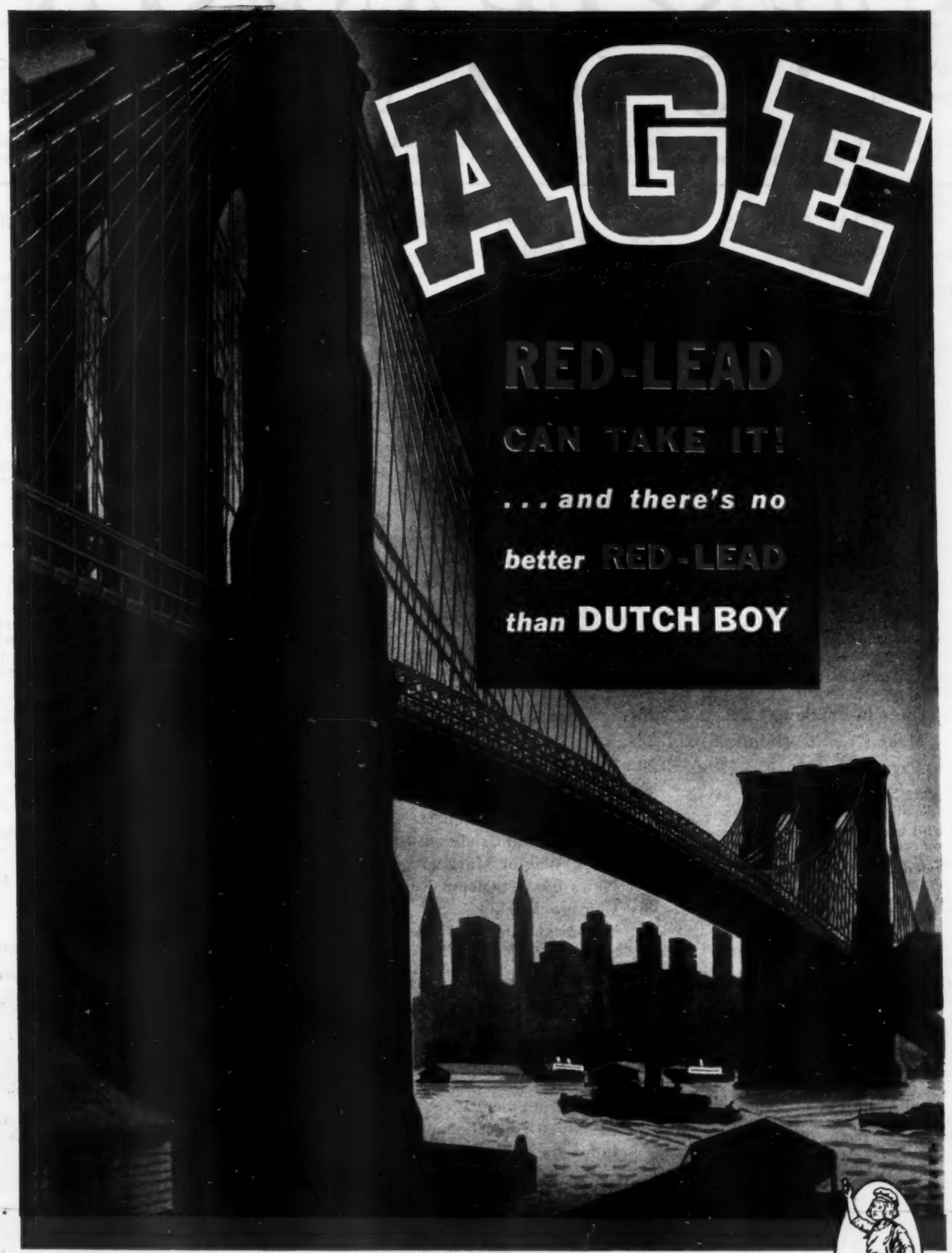

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OIL MAN'S CALENDAR

May

8-11—Tulsa, Oil and Gas Power Division of A.S.M.E., Mayo Hotel.

14-16—Tulsa, American Petroleum Institute, fifth mid-year meeting, Mayo Hotel.

14-16—Wilmington, Del., American Institute of Chemical Engineers, semiannual meeting.

16-17—Roanoke, Va., Virginia Oil Men's Association and Virginia Oil Jobbers Association, annual meeting, Patrick Henry Hotel.

20-23—New York, Annual Convention, National Association of Purchasing Agents, Waldorf-Astoria Hotel.

June

6—Los Angeles, Calif., California Natural Gasoline Association.

7-8—Tulsa, Mid-Continent Group, North American Gasoline Tax Conference, Alvin Hotel.

10-11—Fargo, N. Dak., Northwestern Petroleum Association, North Dakota Division.

19-21—Cincinnati, Ohio, American Society of Chemical Engineers.

20-21—State College, Pa., Pennsylvania Grade Crude Oil Association, annual meeting.

24-28—Detroit, Mich., American Society for Testing Materials, annual meeting, Book Cadillac Hotel.

August

(?)—American Petroleum Equipment Suppliers' Association, place to be named later.

19-24—San Francisco, Calif., American Chemical Society.

September

12-13—Louisville, Ky., Kentucky Petroleum Marketers Association.

18-20—Hot Springs, Ark., North American Gasoline Tax Conference.

18-20—Atlantic City, N. J., National Petroleum Association, annual meeting, Hotel Traymore.

November

4-5—Dallas, Tex., I.P.A.A., annual convention.

11-14—Los Angeles, Calif., American Petroleum Institute, sixteenth annual meeting, Biltmore Hotel.

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Outlook Further Improved by Unified Action on Legislation and Continued Upward Price Trend

By ANDREW M. ROWLEY

A NUMBER of factors combined during the past week to further encourage oil men and make the outlook appear still brighter. Unanimity of opinion against proposed Federal control of the business, as displayed by directors of the A.P.I. at Chicago, solidified into vigorous action by all branches of the industry cannot help but exert a profound impression upon members of Congress and should go a long ways towards removing the uncertainty which has actually retarded recovery in the oil business and which has prevented improvement in conditions which many oil men believe would assume the proportions of a boom.

The continued upward trend of refined oil prices in all sections of the country is a most important factor as evidenced by the fact there no longer is much discussion about the stability of present crude oil prices. In fact, the feeling is growing better prices are justified and probably will be advanced within a reasonable time, due to the fact consumption continues to show gains even over the peak demand of last year, and also because the whole industry knows a basic price of $1 per barrel for crude oil is entirely too low and below the cost of production in many areas.

Field operations are calculated to further strengthen the crude oil market. While domestic consumption of gasoline during the first quarter of this year recorded an increase over the same period of last year and field operations have been active no producing fields of importance have been discovered. Consequently the industry is and has been drawing upon its crude oil reserves to a greater extent than it has been adding to these reserves by new discoveries.

Operators in Kansas continue to make that state the hot bed of activity in efforts to find additional pools. Last week there were 44 wells completed in Kansas and 31 new locations staked. The Sinclair Prairie Oil Company seems to have opened a new pool in Oklahoma. Its test in Logan County and nine miles from previous production, flowed 70 barrels in 15 minutes.

In the Gulf Coast area The Texas Company recovered 2,500 feet of oil in a 15-minute test from its well in Jefferson Parish at a depth of 9,572 feet, this being the deepest producing horizon found so far in the Coastal territory. The Humble procured the first commercial production in the Lake Hermitage prospect of Plaquemines Parish when its test there flowed 16 barrels an hour through a one-quarter-inch choke.

Wildcatters in the East Texas area, outside the East Texas Field, had a bad week, four tests which had been watched closely, being abandoned. In West Texas 13 wells were completed and 17 new locations staked.

Crude Oil Production in the United States

Estimated daily average production for the week ending May 4, a comparison with previous week and the Federal allowables follow:

		Federal allowable	
	May 4	May	April 27
Oklahoma—			
Oklahoma City	116,150	.....	163,875
Seminole-St. Louis	91,125	.....	101,675
Remainder of State	251,300	.....	257,200
Total Oklahoma	458,575	500,200	522,750
East Texas—			
Lathrop	160,723	.....	159,432
Kilgore	152,420	.....	150,617
Joiner	153,810	.....	148,397
Total East Texas	466,953	.....	458,446
West Texas	151,210	.....	145,768
North Central Texas	82,155	.....	88,883
Texas Panhandle	55,120	.....	61,667
East Central Texas	48,210	.....	48,801
Gulf Coast—Texas	179,910	.....	181,580
Southwest Texas	52,273	.....	62,505
Total State of Texas	1,045,831	1,032,900	1,047,650
Kansas	144,725	148,400	146,025
North Louisiana	23,365	.....	22,890
Gulf Coast—Louisiana	105,653	.....	101,720
Total Louisiana	129,018	112,200	124,610
Arkansas	31,510	30,300	30,225
Eastern Fields (except Michigan)	106,500	106,200	104,500
Michigan	40,019	34,300	40,903
Rocky Mountain area	100,960	102,500	89,390
California—			
Santa Fe Springs	36,000	.....	34,600
Long Beach	58,500	.....	60,000
Mountain View	10,250	.....	10,250
Elwood	10,150	.....	9,450
Kettleman Hills	41,000	.....	48,000
Remainder of State	296,600	.....	295,950
Total California	452,500	494,200	458,250
Total United States	2,509,638	2,561,200	2,564,303

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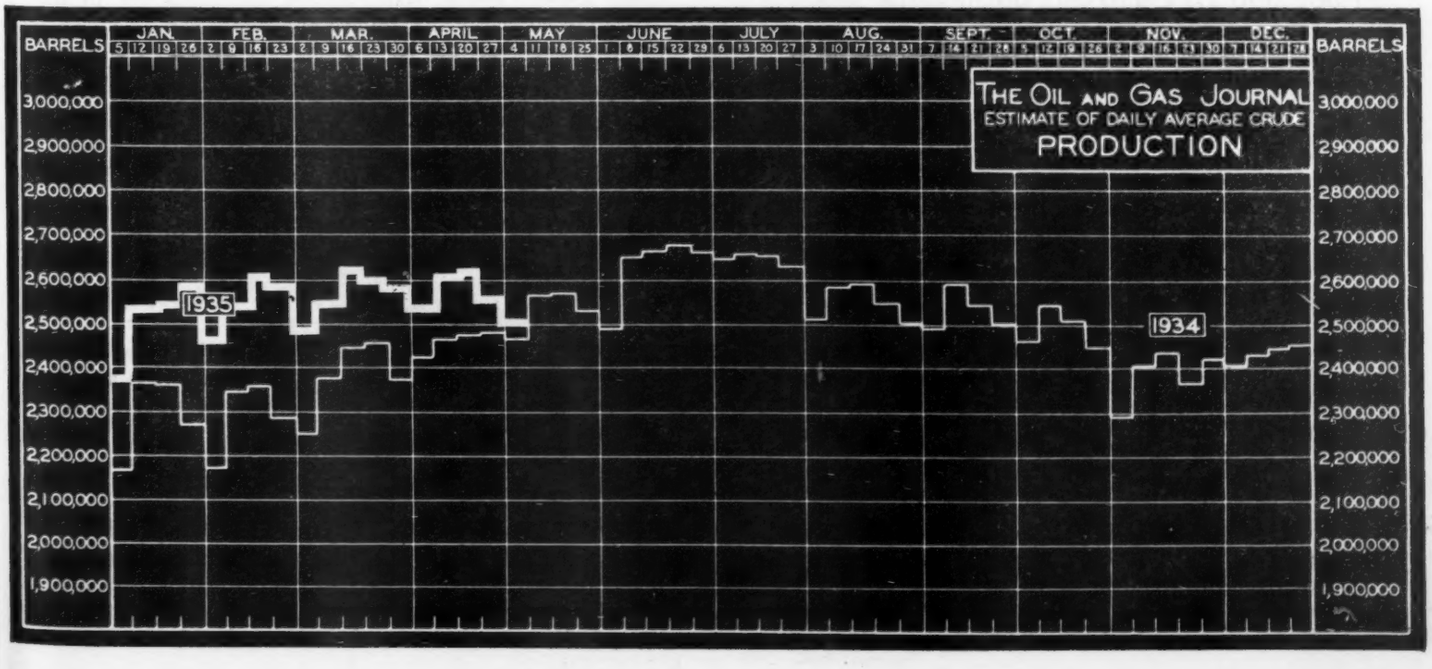


The Bulletin Board

Proposed Federal Control of the petroleum industry received a terrific jolt last Friday when 41 directors of the American Petroleum Institute, representing all branches of the business and large and small operators, voted unanimous approval of a petition to Congress protesting vigorously against all proposals to place the industry in an economic straitjacket and such legislation as the proposed new N.I.R.A.

•

Engine Performance could be improved from 15 to 20 per cent if automotive engineers could standardize motor car design using more volatile gasolines as motor fuels.

•

Volatility Index may become as important a motor fuel specification as octane number. Automotive and refinery engineers attending the annual convention of the Natural Gasoline Association in Tulsa agreed this would be a progressive step in standardizing gasolines and engines.

•

Natural Gas Men, holding their annual convention in Memphis, decided to hold another annual meeting next Spring, probably in Tulsa or Dallas. Attendance at the convention in Memphis is good, 950 having registered on Monday, the first day of the meeting.

•

High Speed oil and gas engines are becoming more and more applicable for individual well pumping units and various types and classes are discussed in a paper before the Oil and Gas Power meeting of the A.S.M.E. in Tulsa.

•

$4,000,000 In Cash and a slightly smaller amount in oil is the reported price paid by the Gulf Oil Corporation for approximately 1,000,000 acres in oil concessions in Eastern Venezuela where the Gulf has carried on wildcat operations for two years.

•

Diesel Fuel is recommended by manufacturers of high speed Diesel engines which are being used in pipe line stations.

•

I. P. A. A. Directors in semi-annual meeting, adopted resolutions opposing Federal control of the petroleum industry and any legislation making the oil business a public utility.

•

Utility Legislation proposed before the Texas legislature, including formation of a commission and strong centralized control of rates of gas and other utilities, has been shelved as far as the present session of the legislature is concerned.

The Thomas Bill has been reported to the Senate by the Committee on Mines and Mining with numerous changes and amendments to the former draft, one of which makes Secretary of the Interior Ickes practically a dictator. The bill may pass the Senate but sentiment in the House seems to favor giving the interstate compact an opportunity to see what it can accomplish before any other legislation for the industry is enacted.

•

Hot Oil Production in East Texas last week was estimated at 34,000 barrels daily, an increase over the previous week, while runs to stills of refineries in the area increased 16,000 barrels daily to an average of 48,000 barrels.

•

East Texas Operators having large quantities of oil in pits were denied permission to move 500,000 barrels of this oil by a decision of a three-judge Federal court. The decision is regarded as of especial importance in view of the fact it is estimated about 3,500,000 barrels of oil is contained in pits located in areas of East Texas and that these pits are capable of holding about 7,000,000 barrels.

•

The $60,000,000 Pipe Line project from the Texas Panhandle to Detroit has been postponed for the time being, sponsors having abandoned hope of getting action at this session of the Texas legislature. They plan to press action in a special session to be called not later than September 13.

•

Crude Runs to Stills in the Mid-Continent, averaging 466,000 barrels daily this month, are on the same level as during April and 13,000 barrels daily under May of last year. Several plants have resumed operations due to the strengthened market for refined products.

•

Solvent Refined Oils will take care of about 40 per cent of the domestic demand for automotive and industrial lubricants in 1935 and before the close of this year an average of about 27,000 barrels of finished solvent refined oils will be manufactured daily in refineries of the United States.

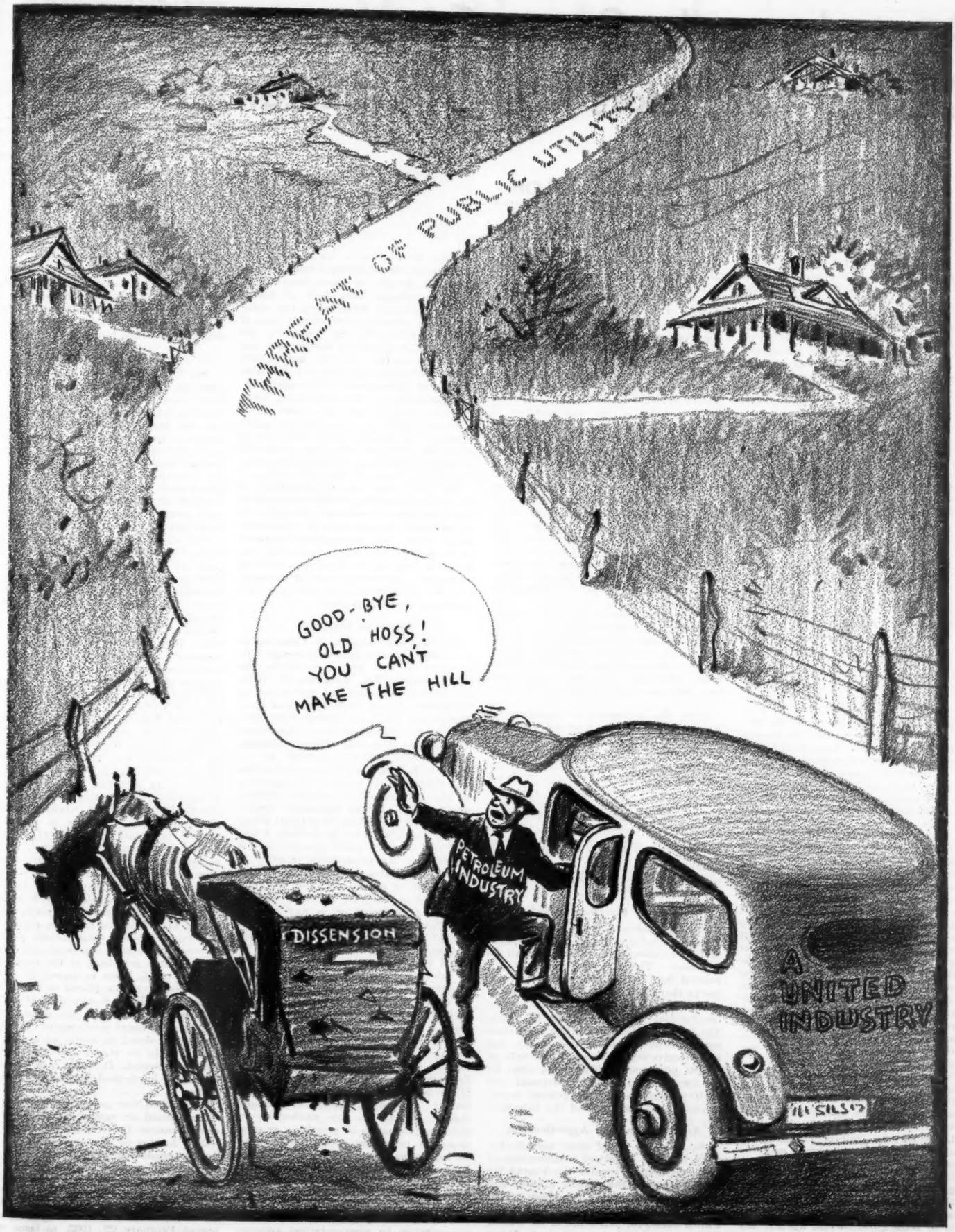
•

Central Pumping Powers have improved greatly in efficiency due to modern design and materials and are an important factor in the production of oil from wells as deep as 4,000 feet.

•

Motor Fuel Volatility in the Atlantic Coast states has continued on an upward trend since 1919 and there continues to be a wide difference in the distillation characteristics between winter and summer gasoline sold in this territory.

Plenty of Power



—Drawn Exclusively for The Oil and Gas Journal.

Amendments by Senate Committee Would Make Ickes Real Oil Dictator

By HUGH D. MALLON
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., May 6.—The Thomas oil control bill has been reported to the Senate by the Committee on Mines and Mining. As it now stands amendments, supposed to have been submitted by the Petroleum Administrative Board, strip the Interstate Compact Commission of all authority to act for any constructive purpose, while giving full authority to the Federal Board to do any thing, within or without the states, which the agency sees fit to do.

Ickes as Dictator

A clause inserted in the original Section 11, of the bill, now Section 12, has brought renewal of the charge that the "purpose is to make Mr. Ickes oil dictator."

In that section of the bill it is provided that rules and regulation and action taken under Sections 5, 6, 9 and 11 "shall first be specifically approved by the Secretary of the Interior."

While the bill was reported by the Senate Committee on Mines and Mining unanimously, it is not expected to get much support from the members on the floor. However, general opinion is that the Senate will pass the bill, if it comes to a vote. In the House of Representatives a different story will result. The Cole committee has comprehensive ideas as to what is necessary for the industry. The consensus of the committee is that the interstate compact plan is the best. If given an opportunity to work, they say, there would be no need for further legislation. For these reasons, it is expected the House committee will change the Senate bill considerably to make it more acceptable to industry, and to provide for adequate protection of the interstate compact plan.

May Limit NRA

Claimed at first to be opposed by the President, a 10-month extension of the NRA, as now contemplated, would be approved by the President, it has been learned. Although the President would like very much to have it extended unequivocally for two years, over the hump of an election year, it is expected he will approve an extension for 10 months if that is the best he can get from Congress.

The Wagner labor relations bill, the social security bill providing for old age pensions, unemployment insurance, maternal care, etc., the thirty-hour week measure, the railroad retirement act, and numerous other New Deal measures are awaiting clarifying decision by the Supreme Court.

The Wheeler-Rayburn utility holding company bill is being quietly dissected by three subcommittees of the house committee on Interstate and Foreign Commerce. As predicted, the holding company abolition features will be changed into regulatory provisions, which may be rather drastic, but will not force the abolition of holding companies. Holding companies which have an economic place in the picture probably will not be affected except as necessary to submit reports to some governmental agency, but contrary to the original bill will not be forced out of business.

Meanwhile the petroleum industry is taking the bull by the horns and preparing to put its own code in order for any eventuality. The production subcommittee and the refining subcommittee several months ago submitted to the Planning and Coordination Committee proposed amendments and revisions to the respective sections of the code.

Today the labor subcommittee begins meetings designed to arrive at a comprehensive revision of the labor provisions. Every member of the subcommittee is either in attendance or on the way here for the meeting, while several members of the industry who have been prominently connected with personnel problems are lending their advice gained from actual connection with problems involved.

It is the intention of the chairman of the Planning and Coordination Committee, J. D. Collett, that a workable, as well as an enforceable, labor section shall be inserted in the code. The present section has, it is felt, been open to criticism and left entirely too much to administrative interpretation by the Petroleum Labor Policy Board.

While nothing so far has been done by the marketing subcommittee towards revising the marketing sections, it is expected this will be the principal subject of discussion at the meeting scheduled to begin Thursday. Countless suggestions have been received, and all will be considered.

After the agreement by members of the committee to the proposed revisions of all parts of the code, it will be necessary to hold a public hearing before these amendments can be put into the code. At this hearing it is expected that theories propounded by the Petroleum Administrative Board will be put forward in opposition to the practical suggestions of members of the industry.

Amended Thomas Bill Text

The essential sections of the Thomas oil control bill as amended and reported to the Senate follow:

Federal Petroleum Board

Sec. 2. There is hereby created the Federal Petroleum Board, to be composed of five members, one of whom shall be chairman. The members shall be appointed by the President for six years, except that two of the original appointees shall be appointed for terms of two years, two for four years, and one for six years. The members shall hold office until their successors are appointed and qualify, and shall receive compensation at the rate of $9,000 per annum. The board shall be set up in the Interior Department and shall function under the general supervision of the Secretary of the Interior.

Ascertainment and Apportionment

Sec. 6. The board shall periodically, upon fair and impartial consideration of pertinent data, determine the demand for consumption in the United States; and the demand for export (exclusive of exports from imports in bond) from the United States for petroleum in the United States and the products thereof. Using such determination, or so much thereof as may be applicable, as a basis, the board shall then determine the just and equitable portion of such demand for crude petroleum from each producing state, specifically determining the quantity from current production; and, if found necessary by the board for the purpose of carrying out the purpose and provisions of this act, the board shall likewise determine the just and equitable portion of such demand for crude petroleum from any or every pool, field, lease, property, storage, unit, or other source of supply within the state. In the determination of demand under this section allowance shall be made for reasonable seasonal variations and for proper fluctuations in stocks to meet the same.

The board shall not be authorized to fix prices at which petroleum or petroleum products thereof shall be sold, nor to make any determination or recommendation which will unreasonably increase or decrease prices; but in estimating demand it shall do so with reference to reasonable prices only, and the necessity for the maintenance thereof over the maximum possible period.

Interstate Compacts

Sec. 7. The consent of Congress is given hereby to an interstate compact to conserve oil and gas, executed in the city of Dallas, Tex., February 16, 1935, by the representatives of the states of Oklahoma, Texas, California, and New Mexico, and there recommended for ratification by representatives of the states of Arkansas, Colorado, Illinois, Kansas, and Michigan, and since ratified by the states of New Mexico, Kansas, Oklahoma and Texas, for the purpose of conserving oil and gas and preventing the avoidable waste thereof within reasonable limitations by the prevention of physical waste by the means specified in Articles 3 and 4 of said compact, which compact is now deposited in the Department of State of the United States; provided, that nothing therein or herein contained shall impair or in any manner affect, or be construed as impairing or in any manner affecting, any right, power or jurisdiction of the United States; and provided further, that in the event it shall be found by the board created by Section 2 of this act, at a hearing to which the governors of all the compacting states, or their respective representatives, are invited to attend, that the compacting states, through the operation of said compact or agency or commission thereunder, and not as individual states, are limiting the production or threatening to limit the production of or commerce in crude petroleum or its products to the market demand or consumer demand therefor, or are in any manner so restricting production of petroleum or commerce in petroleum or its products as to burden or restrict or to threaten to burden or restrict interstate commerce in petroleum or petroleum products, or if it is found at said hearing that the operation of said compact or agency or commission thereunder or any determination or recommendation by representatives appointed thereto will, or will threaten to, fix the price of petroleum or create or perpetuate monopoly in the production of oil and gas, it shall so certify to the President, who shall by proclamation suspend the operation of said compact pending further consideration by the Congress which may under said circumstances, or for any other reason, or at any other time, withdraw its consent to and terminate said compact; and provided further, that a certified record of the proceedings of each and every meeting of the Interstate Oil Compact Commission, constituted in Article 6 of said compact, or representatives appointed thereto, shall be transmitted within 10 days after the close of such meeting to the President or any agency of the United States which he may designate and that such certified record shall be available for inspection by any duly authorized agent of any state or of the United States.

Limitation Upon Fixing Quotas

Sec. 8. Whenever and so long as the production of crude petroleum in any state, through orders of state authorities, is kept within the demand for production from such state, as determined under Section 6, no quotas shall be fixed under this act for pools, fields, leases, or properties within such state.

Quotas in Commerce

Sec. 9. When, and only when, but as often as, the production of crude petroleum in any state exceeds the demand therefor, as determined under Section 6, and the board expressly finds that the surplus supply injuriously affects commerce among the several states or with foreign nations, but always subject to the provisions of Sections 8 and 13, the board shall prescribe quotas of crude petroleum for movement into commerce, in such manner and to such extent as will limit the total movements into commerce to the demand for consumption in the United States and the demand for export, as determined by the board, and shall prescribe such quotas of crude petroleum from such states, pools, fields, leases, properties, storage units, or other sources of supply as it may find to be necessary to effect such national limitation. Instead of prescribing quotas in commerce for all pools, fields, leases, properties, storage units, and other sources of supply in a state, the board shall limit its quota orders to particular areas or particular sources of supply if the board finds it unnecessary to include other areas or sources of supply in fairly accomplishing the limitation of supply herein provided for. The quota prescribed for any such source of supply shall be equal to its just and equitable portion of total demand as determined under Section 6. And it shall be unlawful for any person to place or receive in commerce (export, interstate or intrastate), by sale, purchase, exchange, consignment, transportation or otherwise, any crude petroleum in excess of quota so prescribed, or any product derived in whole or in part from such crude petroleum, with knowledge or reasonable ground to believe that the quota is being or has been exceeded; and this inhibition shall include placing or receiving in such commerce any product of crude petroleum if the crude petroleum itself, being in excess of quota, could not have been placed in such commerce lawfully and directly. If found necessary to accomplish the purposes of this act, the board may require crude petroleum produced in excess of quotas in commerce to be stored and the storage sealed or bonded. In every case exportation shall be deemed placement in commerce.

Sec. 10. (New paragraph added.) Any board or agency established or created under the Act of Congress entitled "An Act to regulate interstate and foreign commerce in petroleum and its products by prohibiting the shipment in such commerce of petroleum and its products produced in violation of state law, and for other purposes" (Public, Numbered 14, Seventy-fourth Congress), approved February 22, 1935, to issue cer-

(Continued on Page 32)

Institute Directors Vote Unanimously Against Any Form of Federal Control

By ANDREW M. ROWLEY

CHICAGO, May 4.—History for the petroleum industry was made here yesterday when a special meeting of directors of the American Petroleum Institute approved unanimously a petition to Congress opposing governmental control of the business and declaring that "legislative uncertainties, threats of governmental control and interference with the legitimate development of a great industry which has served the public satisfactorily, are handicapping our business and retarding progress toward a constructive solution of our problems."

Every branch of the industry was represented among the 41 directors who, after an all-day session in the Stevens Hotel, voted for the petition which has been sent formally to the Speaker of the national House of Representatives and to Vice President John N. Garner, president of the Senate.

No oil man could remember any former meeting of the board of directors of the Institute where any vote was unanimous except in the case of a resolution in memoriam. Consequently, the action of 41 directors, representing all elements in the industry, both large and small, and many divergent views on matters relating to methods, enforcement activities and such questions, is especially important as showing clearly the industry can and will unite and present a solid front against every effort to put it in a straitjacket.

Takes Vigorous Stand

Of equal importance to every person connected with the oil business from the smallest producer and the operator of a wayside filling station to the largest integrated companies is the fact the American Petroleum Institute, representing in its membership approximately 90 per cent of the investment in the petroleum industry, went on record as taking a firm and definite stand against encroaching governmental control and interference with legitimate operations of the business and stated its attitude on pertinent questions affecting every individual and company, in no uncertain terms.

Those in attendance at the meeting were delighted at the stand taken and especially with the fact the action was unanimous. Axtell J. Byles, president of the Institute, stated a united industry can successfully defeat any and all proposals made to place the business in the hands of bureaucracy. He said the industry, if split by dissension, would have passed into complete control of the federal government within two years and that no company or individual would have had any voice whatever in the operation of the business.

But with a united industry, he declared the entire picture has changed. Mr. Byles said there is and can be an honest division of opinion as to the best methods of handling certain matters, such as control of production in flush fields, the efficacy of state enforcement of proration regulations, and the question of federal co-operation or supervision but there is no diference of opinion on the matter of federal control of the business and the entire industry stands as a unit as violently opposed to federal operation of the business and to any and all legislation which seeks to accomplish this purpose either through the medium of making the industry a public utility or placing it under a virtual dictatorship of some governmental official or bureau.

Five Principal Recommendations

The petition to Congress, embodying a program of principles, contains five principal recommendations calculated to assist materially in stabilizing conditions under which the oil industry can operate to the direct advantage of both the makers and users of petroleum products. These five recommendations follow:

"First: That there should be a minimum of regulation by Government, state or federal, to the end that private industry may be free to serve the public most efficiently and economically.

The petition to Congress submitted by the American Petroleum Institute and approved unanimously by vote of 41 directors of the Institute, is printed verbatim on pages 20 and 21 of this issue of The Oil and Gas Journal.

"Second: That the state governments, having the power to regulate production of crude oil and natural gas to prevent waste and so conserve a valuable natural resource, should be encouraged in that effort.

"Third: That the Federal Government, having the power to deal with interstate and foreign commerce, and to authorize interstate compacts, should supplement the production control effort of the states:

"By making permanent and rigidly enforcing the Connally Law (S. 1190) prohibiting the shipment in interstate and foreign commerce of oil produced in violation of state laws;

"By approving the interstate compact which has already been ratified by the legislatures of five of the principal oil producing states;

"By directing the U. S. Bureau of Mines, a competent fact-finding agency, to ascertain the crude oil production necessary to meet the consumptive demand of the nation and to make its findings available to the interstate compact commission and the respective conservation authorities of the oil producing states;

"By exercising control of imports to a proper ratio to domestic production for such a time as is necessary.

"Fourth: That as concerns marketing, the field of greatest competition, there is no reason to single out the oil industry for special federal intervention. That industrial pacts and agreements when voluntarily made by any industry for the purpose of eliminating unfair methods of competition should be permitted.

"Fifth: That any such economic straitjacket as is contained in S. 2445 or similar proposals for the enlargement of the NIRA would serve to increase the price of gasoline and demoralize the industry."

Power of the Industry

The petition further points out that the investment in the petroleum industry is more than $12,000,000,000; that it has an annual payroll of about $1,569,600,000; that during the past two years it has reabsorbed into its employment 217,200 persons; and that taxes on its properties, products and operations contribute $1,250,000,000 annually towards the maintenance of government. It also shows the phenomenal progress made by the industry in improving its products, in conserving its raw material; in doubling the yield of gasoline from a barrel of crude oil and in reducing the price of gasoline to the consumer by more than one-half during the past 15 years. After summarizing these accomplishments, the petition says:

"With such a record it is apparent that the hands of the oil industry should not be tied by governmental bureaucracy. The issue between government and private responsibility for this vast industry should not be obscured by vague declarations that the petroleum industry has become affected with a public interest justifying governmental control just because conservation has come to be recognized as a responsibility of government."

In conclusion, the petition says:

"Unfortunately, governmental agencies, once organized and endowed with some measure of authority, aspire to continue their existence and increase their authority. Any proposal to amend the National Industrial Recovery Act with provisions that convert it from what is theoretically a system of governmentally supervised, industrially self-regulated codes of fair practice into a system of federal industrial dictatorship becomes a striking example of this tendency to encroach.

"We have proceeded on the road to recovery sufficiently to consider methods of orderly development of business as a substitute for devices created in moments of national emergency and desperation. The time has come to consider the long range view of American economic progress.

"The oil industry is prepared to do its part, and demonstrate its confidence in itself and in the future of the country, if it can but know clearly that its efforts are not to be checkmated by constant change, bureaucratic dictation or usurpation of power.

"Congress has an unparalleled opportunity to aid recovery by a frank recognition of separate fields of federal and state responsibility under the Constitution."

Directors Present at Meeting

Directors of the Institute present at the meeting were: Richard Airey, president, Asiatic Petroleum Co.; T. H. Barton, Lion Oil & Refining Co.; W. R. Boyd, Jr., executive vice president of the Institute; E. J. Bullock, Standard Oil Co. (Indiana); D. S. Bushnell, Northern Group of Pipe Lines; Axtell J. Byles, president of the Institute; F. R. Coates, Cities Service Co.; J. D. Collett, independent producer of Fort Worth and chairman of the Planning and Coordination Committee; William N. Davis, Phillips Petroleum Co.; H. M. Dawes, Pure Oil Co.; O. D. Donnell, Ohio Oil Co.; J. Frank Drake, Gulf Oil Corp.; W. S. Farish, Standard Oil Co. (New Jersey); W. H. Ferguson, Continental Oil Co.; W. S. Fitzpatrick, Consolidated Oil Corp.; Jacob France, Mid-Continent Petroleum Corp.; H. R. Gallagher, Rio Grande Oil Co.; W. V. Hartman, Gulf Refining Co.; W. M. Irish, Atlantic Refining Co.; A. Jacobson, Amerada Petroleum Corp.; Roy B. Jones, Panhandle Producing & Refining Co.; H. T. Klein, Texas Corp.; C. H. Kountz, Sinclair Prairie Pipe Line Co.; E. A. Landreth, Landreth Production Co.; F. A. Leovy, Gulf Oil Corp.; B. L. Majewski, Deep Rock Oil Co.; L. L. Marcell, White Eagle Oil Corp.; J. Edgar Pew, Sun Oil Co.; Charles F. Roeser, Roeser & Pendleton; E. G. Seubert, Standard Oil Co. (Indiana); E. W. Sinclair and H. F. Sinclair, Consolidated Oil Corp.; W. G. Skelly, Skelly Oil Co.; E. L. Smith, independent operator of Mexia, Tex.; W. E. Smith, Standard Oil Co. of Kentucky; R. W. Stewart, Chicago; W. C. Teagle, Standard Oil Co. (New Jersey); J. W. Van Dyke, Atlantic Refining Co., and R. L. Wheelock, independent operator of Corsicana, Tex. Russell B. Brown, general counsel of the Independent Petroleum Association of America, attended the meeting as the representative of Wirt Franklin, a director who was ill. Others in attendance included Col. Patrick J. Hurley and Daniel T. Pierce.

The directors at the meeting elected Dan J. Moran, president of the Continental Oil Co., as treasurer of the Institute to succeed Frank Phillips, president of the Phillips Petroleum Co., who resigned as treasurer. They also elected C. M. Boggs of the Kanotex Refining Co. and president of the Western Petroleum Refiners Association as a director to succeed Howard Bennette, deceased, and elected Harry A. Logan, of the United Refining Co., Warren, Pa., as a director to take the place of Frank B. Fretter, deceased. Resolutions in memoriam were adopted on the deaths of Mr. Bennette and Mr. Fretter.

An informal discussion, held at the close of the meeting of the directors, on the matter of well spacing in the East Texas Field, disclosed unanimity of belief too close drilling in many sections of the field has been very costly to operators. It was stated if proper spacing regulations were enforced, the number of wells in the field ultimately could easily be held to a grand total of 20,000.

I.P.A.A. Opposes Federal Control of Oil Industry

OKLAHOMA CITY, Okla., May 6.—Opposition to any legislation that would provide for federal control of the petroleum industry or the making of the petroleum industry a public utility was clearly expressed in a resolution adopted here today by the board of directors of the Independent Petroleum Association of America assembled in semiannual meeting. The resolution further declared the association to be opposed to the new proposals that have been made pertaining to the National Industrial Recovery Act, such as S. 2445, but that it does favor an extension of the principles contained in the existing NRA.

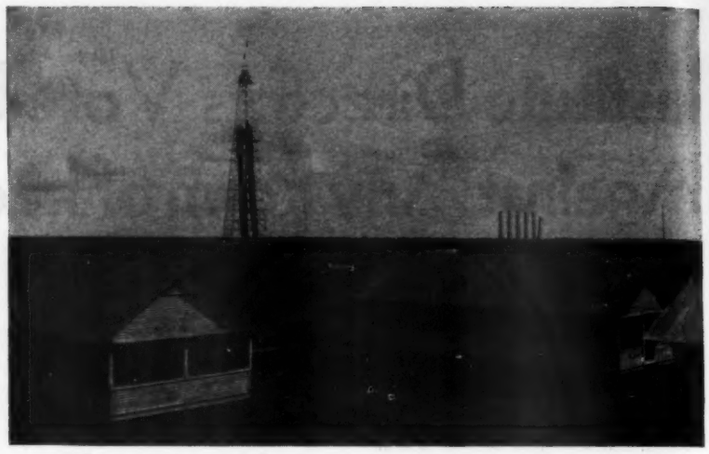
The association, by resolution of its directors, reiterated its support of such federal legislation as may be necessary to provide for the conservation of natural resources and the stabilization of the petroleum industry, with certain principles deemed necessary to accomplish this purpose, these principles being embodied in the Thomas bill.

Large Attendance of Gas Men at Memphis Meeting

MEMPHIS, Tenn., May 6.—More than 950 natural gas men from all sections of the country had registered on the first day of the annual meeting of the Natural Gas Department of the American Gas Association which opened at the Peabody Hotel here today. The meeting will continue through Thursday with numerous sessions devoted to the reading and discussion of papers on topics of especial interest to producers, transporters and distributors of natural gas.

The managers' committee of the department decided to hold another convention of the Natural Gas Department next spring, probably in Tulsa or Dallas.

Gulf Purchase Points to Increased Activity in Eastern Venezuela



No. 1 Oficina, the discovery well

NEW YORK, May 4.—The reported purchase of approximately 1,000,000 acres in oil concessions in Eastern Venezuela by the Venezuela Gulf Oil Co., in an area where the Gulf company has been carrying on extensive wildcat exploration work for two years, has served to intensify interest in that section.

While not officially confirmed it is reliably reported that the Venezuela Gulf Co. Venezuelan operating unit of Gulf Oil Corp., has entered into a contract covering the purchase of the acreage from Orinoco Oilfields, Ltd., and the Alfred Meyer interests of London, England. The reported price was $4,000,000 cash with a slightly smaller amount to be paid in oil. This is said to be the largest cash transaction involving Venezuelan oil properties in three years. Other companies have increased their holdings in Eastern Venezuela in the past year. The Standard of New Jersey subsidiaries have added substantially to their properties and other deals have been made with non-operating concerns holding concessions, looking to development of properties.

Points to New Field

The Gulf purchase is interpreted to mean the company has opened a new field in the central part of the state of Anzoatiqui which may overshadow some of the pools in the Lake Maracaibo District. The Gulf company late in 1933 completed No. 1 Oficina, in the district of Freitas about 75 miles northwest of Ciudad Bolivar on the Orinoco River. The well showed a large flow of wet gas at a depth of 6,184 feet. The test was not completed as an oil well and early in 1934 the company started drilling a second test.

At the same time another test was started about 18 miles south and east and another 10 miles north. Four tests have been drilled in that section with a fifth test, the Santa Rosa, further north and east, which has a fishing job at 5,400 feet.

The first four tests stretch over an area approximately 30 miles in length. The company shut down its operations at these wells last fall and there have been conflicting reports whether the tests were favorable. The bulk of the new acreage is in the immediate vicinity. The company has also acquired smaller concessions. It is now said that with this additional acreage the company will shortly resume operations. The concession is inland and transportation to the coast will be a major problem. In the drilling of the four tests supplies were brought up the Orinoco River and taken overland to the drilling sites.

Quirequire Field

Commercial oil production is secured at present in the Quirequire Field north and east of the Oficina area where the Gulf's exploratory operations have centered. The field is about 40 miles from the Gulf of Paria, the northeastern coast of eastern Venezuela. Trinidad also borders on the east coast of the Gulf of Paria. The field is just south of a range of mountains between San Juan and Guarapiche Rivers.

The field was discovered in 1924 but it was not until the past three years after it had been acquired by Standard of New Jersey through Creole Petroleum Corp. that intensive development began. The field is operated by Standard Oil Co. of Venezuela, a Creole unit. Production has steadily increased especially during the past 18 months and is approximately 55,000 bbls. daily. The proven area consists of a strip averaging 2 miles in width and 15 miles in length. The wells are scattered and the production is obtained from less than 100 wells. The producing depths range from 2,300 to 3,300 feet. The oil is around 18° gravity and is refinable crude. The field being controlled by one company permits the most efficient development and estimates as high as 500,000,000 bbls. have been made on ultimate production.

The crude is transported on the San Juan River to which the field is connected by pipe lines. Oil is transported in barges to loan tankers. A deep water loading terminal is being constructed on the Gulf of Paria. The Standard company completed plans to do considerable exploratory drilling in this section.

Additional Drilling

Standard of Venezuela recently completed a deal with Pantepec Oil Co. of Venezuela covering the development of part of the former company's concessions in eastern Venezuela. It is reported the Standard company has made two locations and will start drilling soon. One test is northeast of the Gulf holdings and another east. The Pantepec holdings are as close as any to the Gulf properties in the state of Anzoategui.

Under its agreement with Pantepec, Standard of Venezuela agrees to drill at its own expense, six wells within three years at locations to be selected by the Standard which controls directly large concessions, including properties acquired by purchase from the Venezuelan Government which were a part of the original concessions held by the Venezuelan Gulf Co. Under the concessions, owners after a certain specified period are compelled to return 50 per cent of their concessions to the Government. It was this acreage Standard is said to have acquired by out-bidding the Gulf after it had been turned back to the Government.

The six tests to be drilled by Standard on the Pantepec holdings are to go 4,000 feet. Within 60 days after the six wells have been drilled Standard must elect to take one of the courses provided for in the contract. It can return all the holdings to Pantepec or elect to continue operations on a share basis outlined in the agreement which provides for drilling additional wells.

Considerable exploratory work has been carried on in eastern Venezuela in the past two years. Gulf and Standard companies have had surface parties and torsion balance and seismograph crews at work. The Meyer interests also have carried on work. It is reported Sinclair interests has a field party at work. Sinclair companies own or control concessions in eastern Venezuela but not in the immediate vicinity of the Gulf's properties. Shell, Pure, and Texas companies are among other major companies with holdings. It has been reported recently Socony-Vacuum Oil Co., Inc., has purchased concessions or acquired interests in holdings. Substantial acreage is held by non-operating companies.

Oil and Gas Power Division A.S.M.E. Holds Eighth Annual Meeting in Tulsa

For the first time since organization in 1927 the Oil and Gas Power Division of the American Society of Mechanical Engineers is meeting west of the Mississippi River. The eighth annual meeting assembled in Tulsa, May 8 at the Mayo Hotel, and will continue through Saturday, May 11, held in conjunction with the Mid-Continent section of the A. S. M. E.

The program includes six technical sessions and an exhibit of materials and accessories for Diesel engines. Many engineers specializing in internal combustion engines are attending the meeting as well as builders and distributors of this type of equipment.

The Oil and Gas Power Division was formed on a national basis within the A. S. M. E. shortly after the war largely through the efforts of Professor Charles Lucke of Columbia University, New York City, and Henry L. Doherty and others. Its objective was to disseminate information about Diesel and other types of internal combustion engines and to spread their use. It was believed by the founders of the division the use of this type of power was to expand and in many places supplant steam power and time has demonstrated their ideas were sound. The petroleum industry is interested in this expansion in the use of internal combustion units for it means greater use of petroleum products.

In another section of this issue of The Oil and Gas Journal is printed the five principal papers presented before the technical sessions. They deal with the application of Diesel, semi-Diesel and gas engines to the many places where they can be used in production, including drilling, and transportation of crude oil and other products by pipe lines.

In view of the growth of the field of opportunity for the use of this type of power in the petroleum industry there was formed an association of Diesel Engine Manufacturers in 1928. A group of manufacturers met at the national meeting of technical experts in the oil and gas power field and encouraged the formation of an association. From this has grown the present Diesel Engine Manufacturers Association. One of the functions of this group is to gather Diesel power costs and these data have been compiled in the form of cost reports. The 1933 report covers information on 156 oil engine generating plants and the 1934 report should be available in June of this year.

These reports are of interest to engineers in the petroleum industry as they contain detailed information of fuel costs, lubricating costs, cost of attendants and superintendents, supplies and miscellaneous items, cost of engine and plant repairs. The reports have gradually grown since the first was made which covered only 40 oil engine generating plants. The report is now recognized as authority on the subject of power costs for oil engines.

The committee that compiles these data is headed by H. C. Major, engineer in charge of municipal Diesel engine generating plant in Rockville Center, Long Island, New York. The balance of the committee is made up of representatives from the private operators of Diesel electric generating plants, Diesel engine manufacturers, users and consulting engineers.

Detroit Gas Pipe Line Shelved This Session

AUSTIN, Tex., May 6.—Administration sponsors of a bill for a $60,000,000 state-profit natural gas pipe line from the Panhandle to Detroit today officially abandoned hopes of getting it up for action in the session scheduled for adjournment Saturday, and began planning to press action in a special session to be called not later than September 13. Governor James V. Allred has tentatively negotiated federal public works financing for the pipe line construction project. Governor Allred's state utility regulating commission and strong centralized control of rates of gas and other utilities also was shelved for this session.

DEATH OF F. D. GRUNDER

F. D. Grunder, manager of tubular goods sales for Jones & Laughlin Steel Corp., Pittsburgh, Pa., died after a brief illness at his home in Pittsburgh on April 30. Mr. Grunder has been connected with the Jones & Laughlin company for many years and is well known in the petroleum industry through sale of pipe goods. He is survived by his widow and several children, his son F. J. being employed as salesman for the Frick-Reid Supply Corp. at its Ponca City, Okla., branch. The body was buried at Pittsburgh.

Volatility Standardization Suggested by Engineers at Gasoline Convention

By W. T. ZIEGENHAIN

The one point on which engineers of the automotive and oil industries agreed, as the result of the motor fuel symposium held during the fourteenth annual convention of the Natural Gasoline Association of America in Tulsa this week, was that recognition must be given to "volatility index" as an important specification for motor fuel. It was generally agreed also that the 50 per cent distillation point would best serve as the basis for expressing the volatility index of a fuel as was originally conceived by George Oberfell and Dick Alden of the Phillips Petroleum Co. years ago. Sufficient prominence was given this item as to suggest that volatility index will stand along the side of octane number as the two most essential characteristics of motor fuel in predicting engine performance. This thought was subscribed to in substance by such authorities as T. A. Boyd of the General Motors Research Corp., J. B. Macauley, Jr., and Gilbert Way of the Chrysler Corp., Dr. G. G. Brown of the University of Michigan, as well as by the direct representatives of the refining and natural gasoline industries.

Volatility Index

The term volatility index of itself appears technical and generally uninteresting, but because of its expressed importance as an index of motor fuel quality it will affect, if adopted, the operations of refineries and gasoline plants and affect the pocketbooks of oil producers, refiners, natural gasoline manufacturers, jobbers and consumers in the same manner as the adoption of octane number. For this reason the agreement reached through the symposium promises to be the starting point of a broad movement to effect a major change in the oil industry's method of evaluating motor fuel and if all may agree upon the method of test procedure. we may see in the not far distant future the purchase of motor fuels on some basis such as the following. This is intended to serve here as an example and not as anything that was specifically suggested at the meeting.

Octane number—70 or above.

Volatility index—90 to 100.

Reid vapor pressure—Not over 14 pounds.

If some such set of simple specifications could be established as expressing motor fuel quality and assuming the refining industry could shape its operations so as to effect a standardization of gasoline quality, the automotive engineers appeared ready to agree that more volatile gasolines could be utilized to advantage. They stressed the need of the oil industry settling upon some common understanding of methods for testing gasoline, the importance of making the standardized gasoline available in all sections of the country and the cost of the motor fuel consistent with what it is costing the motorist to operate his car under the present system in which gasaline quality extends over a wide range.

Mr. Boyd stated that the two chief problems encountered in automotive design as related to fuel consumption are volatility and knock rating, and that because of these factors a great interdependence has developed between the automotive and refining industries.

NEW OFFICERS

Serving with T. R. Goebel, of the Skelly Oil Co., newly elected president of the association, are W. E. Reardon, of the Columbian Gasoline Corp., elected as vice president; F. F. Ketchum, of Owens, Libby Owens, vice president; R. E. Haylett, of the Union Oil Co., vice president, and W. F. Lowe, secretary and treasurer.

Further, he stated, three factors govern the design of automobiles in this respect.

1. The engine must be designed for the fuels it is to consume.

2. The design cannot be based upon the "average" gasoline. A wide range of fuels requires that the motor be manufactured to operate satisfactorily with both extremes of this range.

3. In addition to the range of gasolines extant at the time of car manufacture, there is a digression brought about by trends in motor fuel specifications, and motor cars must be manufactured to utilize these future fuels.

In order to obviate these difficulties the automotive engineer is forced, Mr. Boyd stated, to rely on compromise and guesswork in much of his activity. He then cited the lack of any classification or survey of the volatility of gasolines on the market, and stressed the important contribution which some method of volatility classifications would make.

In the past there have been two outstanding trends in automotive design. There has been a general increase in the power output per pound of motor, that is, there has been a better utilization of energy in the fuel. There has also been a movement toward greater reliability of motor car operation. In 1926 the average weight of a car was 3,700 pounds; in 1934 the average was 4,700 pounds. In spite of this 25 per cent increase in car weight, the size of the motor has not increased. Another notable fact is that the cubic feet of piston displacement per ton mile of the vehicle has not changed appreciably during the same eight-year period. In performance of automobiles, a steady increase in the maximum speed has been attained. From the average maximum of 57 miles per hour in 1926 performance has jumped to 80 miles an hour in 1934.

From the standpoint of economy, the average in ton miles per gallon of gasoline has been raised from 22 to 31 in the period covered. In addition to this, the reliability of performance has greatly increased. The principle cause for these improvements was attributed by Mr. Boyd to the improvement in volatility and antiknock properties of gasolines since 1926.

Citing the increase in the use of automatic choking devices, heat control and starting devices, Mr. Boyd stated that even though these devices will care for varying operating conditions on the same fuel, they cannot be adjusted for gasolines of different volatility, because of the lack of such a classification. A simple system such as the volatility number would facilitate the car manufacturer's recommendation of the fuel to use, and would enable the user to adjust his car to operate at greatest efficiency for any gasoline.

Recent trends in fuel systems are toward cooler manifolds and lower velocity feed through them. From 1931 to 1934 manifold temperatures have decreased from 120° F. to 90° F. A general acceptance of down-draft carburetors has also been effected recently. Crankcase ventilation and increased capacity of fuel pumps are other improvements which allow for better utilization of gasoline in the modern motor car.

Upon the completion of the reading of Mr. Boyd's paper, Gilbert Way of Chrysler Corp. read a prepared discussion of Mr. Boyd's paper which also reflected the views of J. B. Macauley, Jr., of Chrysler Corp. Mr. Way said:

"It should be remembered that the great majority of the motoring public is nontechnical and consequently have but a vague idea as to the function or proper use of manually controlled engine devices. It has therefore been the aim of the automotive engineer to remove, in so far as possible, many of these controls and adjustments.

"The automatic choke, as now developed, enables the engineer to accurately control the starting and warm-up mixture for optimum performance on the conventional type of fuel. Just as it is impossible to manually control a heating plant or refrigerator with the precision of a thermostat, the most skilled operator with constant hand choke manipulation could

T. R. GOEBEL
New President, N.G.A.A.

Meeting of Pennsylvania Oil Institute at Titusville Assures Its Continuance

By ROBERT C. CONINE

TITUSVILLE, Pa., May 4.—Permanency for the Oil Institute initiated here appeared assured when attendance passed the 700 mark. Designed as an educational forum for Pennsylvania Grade producers, the papers were of a highly practical nature.

Discussing pumping powers and prime movers, George Reid, of Joseph Reid Gas Engine Co., pointed out difficulties which may arise on producing properties and suggested remedies. Covering the field of powers, analysis of weight distribution, shackle troubles, prime mover considerations, he outlined corrective procedure. Mr. Reid said that while the "full Diesel" engine may involve an initial higher cost, the savings in fuel economy will cover the additional outlay within two years. He demonstrated the solid injection system recommended with an apparatus which builds up a pressure of 4,000 pounds per square inch and throws a jet of oil with sufficient force to pierce a half-inch pine board.

The paper presented by S. H. Cathcart, senior geologist of the Pennsylvania Geologic and Topographic Survey, and written jointly with Dr. Charles R. Fettke, head of the geology department of Carnegie Institute of Technology, is concluded in this issue of The Oil and Gas Journal.

Discussions the first day were by H. R. Pierce, of the Oil & Gas Recovery Co.; A. W. Scott, of Wolverine-Empire Refining Co.; C. C. Hogg and Floyd Williams, of National Petroleum Co.; Henry Fuellhart, of Clinger Oil & Gas Co.; Alden Foster, geologist and petroleum engineer; Kenneth B. Barnes, of Pennsylvania State College, and J. E. Moorhead, executive secretary of Pennsylvania Grade Crude Oil Association. Mr. Moorhead discussed the position of the grade oil refiner in the national picture. This refiner, he said, cannot stand without the support of every producer in the region.

Mr. Pierce, in his discussion of oil property development in the stripper well region, cited the many difficulties faced by those operators who failed to appreciate the value of information needed in profitable development of their properties. Mr. Moorhead said the Pennsylvania operator, producer or refiner had always been in the lead in predicting the trend and in realizing and putting into use improvements and economies, both to the consumer and to himself.

The Pennsylvania industry was shown by statistics to supply approximately 35 per cent or more of the motor lubricants used in the United States. The grade industry could supply the consumer for many years with that product at a very economical cost.

Mr. Foster spoke of the various geologic considerations in appraising Pennsylvania oil properties. The necessity of discounting the value of future production to present worth was illustrated.

Mr. Barnes divided his paper on the utility of the petroleum engineer into four parts: (1) Sands, (2) crudes, (3) mechanical equipment, and (4) results. Methods and calculations available to producers in this territory were brought out and a yardstick from the results of repressuring with air-gas mixtures of Mid-Continent operations was given.

Thursday morning groups visited manufacturing plants and refineries in Titusville and Oil City, repressuring properties of the National Petroleum Co., and Drake Memorial Park. C. C. Hogg acted as general chairman, with Harry Botsford as secretary. It is planned to hold the institute twice yearly.

not hope to approach the regulation supplied by this automatic device.

"It is obvious, with such critical conditions to be controlled as occur during starting and warm-up, that calibrations worked out to cover the complete range of temperatures encountered must necessarily be based upon fuels of reasonably similar volatility and that any widely divergent type of fuel, especially in the range below the 50 per cent distilled point, are likely to cause difficulty.

"Assuming a condition of 32° F. atmospheric temperature, which then also becomes the equilibrium air distillation temperature in a thoroughly cooled engine, and a resultant air vapor mixture of 16 to 1, we can compute from the ratio of A.S.T.M. to equilibrium air distillation temperatures, the percentage evaporated of a given gasoline. For the above conditions, a ratio of 1.35 to 1 exists between the absolute temperatures, A.S.T.M. and equilibrium air distillation. This ratio is satisfied by the A.S.T.M. 30 per cent point of 204° F. taken from the curve of a regular grade Detroit winter gasoline. With 30 per cent evaporated and a resultant air vapor mixture of 16 to 1, the air fuel ratio supplied is then 4.8 to 1.

Range of Control

"Repeating the same example with identical conditions except that an A.S.T.M. curve of the aforementioned type of highly volatile gasoline be used, we find the ratio of 1.45 to 1 applies between the two curves which is satisfied by the A.S.T.M. 90 per cent point of 252°. In this case the air fuel ratio supplied for a resultant air vapor mixture of 16 to 1 would have to be 14.4 to 1, a matter of 330 per cent leaner than in the previous case, a range of control obviously impossible to cover with a single calibration.

"It can also be shown that with the choke calibrated for the 4.8 to 1 air fuel ratio which was satisfactory for the Detroit winter gasoline, the highly volatile fuel will be 85 per cent evaporated and result in an air vapor mixture of approximately 5.6 to 1, which is beyond the rich explosive limit under well vaporized conditions.

"It may be of interest to note that tests in our cold room, with summer type gasolines having 10 per cent points between 150° and 160° F. indicate that satisfactory starting at 0° F. is obtained with engines in good mechanical condition. It was found that below a definite cranking speed starting became very erratic regardless of fuel volatility. It is therefore doubtful, in most cases of inability to start due to poor condition of electrical or mechanical equipment, if increased fuel volatility would be of much assistance.

"Another problem encountered with this type of fuel was an idle stalling condition which was very persistent during the warm-up period. A considerable number of things were tried to determine the cause, among which changes in the following items had no effect: idle mixture, water jacket temperature, carburetor throttle body temperature and hot spot temperature. Humidity greatly aggravated this condition but we found that conventional fuels were also somewhat affected in this manner. Engine idle speed was slightly slower with the highly volatitle gasoline on the same throttle idle position, exhaust gas analysis when warm was practically the same as with standard fuel. It is our belief that the additional friction drag of cold oil in the crankcase and the weaker idle supplied by this type of gasoline contributes largely to the stalling. It is also probable that the vaporization of wet fuel on the manifold walls when the throttle is suddenly closed gives a momentarily over-rich mixture. The only cure found was to increase the throttle opening sufficiently to maintain the idle with this gasoline. It has been our experience that fast idle speeds are not desirable, in the mind of the public, but on the other hand, the condition of constant stalling on warm-up would no doubt constitute an even more serious objection.

"From the standpoint of vapor lock, a similar trend in increasing the low end volatility would aggravate the situation considerably. Mr. Boyd has ably given the data on improved vapor handling capacities and reduced temperatures of fuel systems. We wish to reiterate his statements in regard to the occurrence of starting difficulties and vapor lock troubles. The probability of vapor lock occurring in temperatures even considerably above those causing difficult starting is remote.

Results of experiments on the warming-up quality of gasolines were reported by T. B. Rendell of the Shell Petroleum Corp. Tests were made on various automobiles in the laboratory, under different operating temperatures. The motors were started cold with various fuels and the time elapsed before operation became normal without the use of the choke was noted and termed the warming-up quality of the fuel. This was converted to miles and denoted as the warming up quality or W.U.Q. Temperatures as low as –20° F. were used in testing. The motor performance was found to be more greatly affected by the volatility of the gasoline at the lower temperatures. As chairman of the meeting S. S. Smith of the Shell Petroleum Corp. asked for comments regarding these papers and discussion and emphasized the fact that the meeting afforded an opportunity to exchange ideas. He pointed out that although the average driver may not know what is at fault when the car performs poorly the autoist is going to say it is either the car or the gasoline and a standardization of gasoline would go a long ways to aid in solving the problems of both the automotive and refinery engineers.

Code Work

Passing on to the work the association has accomplished under the code, W. F. Lowe, secretary, offered a summary of the procedure in getting recognition of the natural gasoline industry in Washington and then working out a form of reporting natural gasoline statistics. Mr. Lowe reported as vice chairman of committee "J" through which the industry has worked with representatives of other branches of the petroleum industry and Government representatives. His comments regarding the committee's attitude toward price differentials on natural were significant. He said: "It has been suggested that we adopt standard price differentials for the various grades of natural gasoline. Unquestionably there is merit in the suggestion, but the difficulties involved are such that the immediate outlook for the completion of this type of price scale is not particularly bright. The Natural Gasoline Association has discussed this subject on numerous occasions without success and though it might try it again, there seems to be nothing to indicate that in the future such price differentials will be necessary."

The association was fortunate in having J. D. Nevius, assistant accountant for the petroleum administrative board, comment upon the difficulties encountered by the federal agencies in getting statistics together monthly which will permit a complete report to be made on the industry for allocating purposes. He referred to form 944 which is used by the industry in reporting to Washington and concluded by saying: "We appreciate the co-operation of the large majority of you who do submit satisfactory reports, and hope that between us we may convince the few delinquents of the necessity of reporting their operations. We can make the definite promise that no individual company's operations will be apparent on our reports, and that we want to be of all possible assistance in providing accurate and complete information which can be used for the betterment of conditions in the industry."

Tribute to President

The seriousness of the meetings was broken Friday morning long enough to permit Ray Miller, of Hanlon-Buchanan, Inc., to review the untiring work of D. C. Williams of the Continental Oil Co., retiring president of the association for two years and to present to him a beautiful wrist watch as a gift from the

(Continued on Page 78)

New Officers Are Named for Natural Gasoline Supply Men's Association

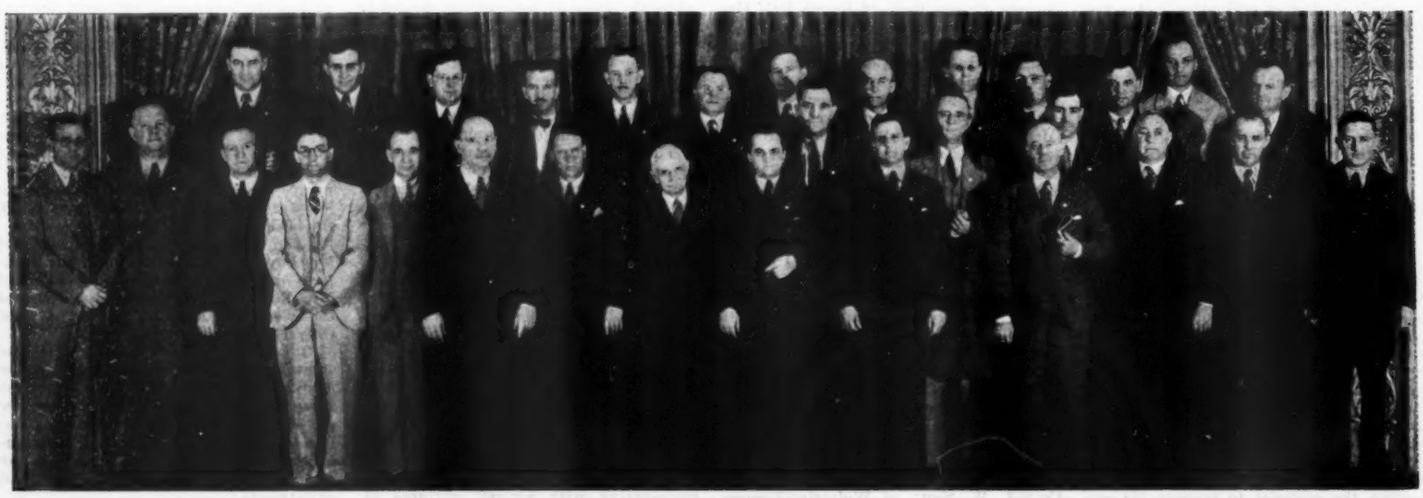
By GEORGE WEBER

The Natural Gasoline Supply Men's Association met in Tulsa May 1 and elected the following new directors: W. D. Moorer, Moorlane Co.; D. W. McKay. Cooper-Bessemer Co.; W. W. Woobank, Woobank Pump & Machinery Co.; G. B. Lane, Foxboro Co.; and W. A. Schleuter, Refinery Supply Co. The directors who will retire in 1936 are E. H. Triphaus, Taylor Instrument Co.; M. F. Waters, Hanlon-Waters, Inc.; J. A. Lupfer, Worthington Machinery Corp. of Oklahoma; M. H. Kotzebue, Tulsa Boiler & Machinery Co., and J. H. Satterwhite, Westcott & Gries.

The directors at a later meeting named the following officers for the association to serve during the coming year: President, J. A. Lupfer; first vice president, G. B. Lane; second vice president, D. W. McKay; treasurer, W. D. Moorer.

The Supply Men's Association entertained at the annual convention of the Natural Gasoline Association of America with a dance, a luncheon and a smoker. This is a regular annual feature of the convention.

The election of officers took place at this time due to a change in the by-laws of the association. The retiring officers were elected December 28, 1934, at a meeting of the directors in Tulsa.



Members of the Natural Gasoline Supply Men's Association included in the picture are: Wm. F. Lowe, Secretary of the association; M. F. Waters, Hanlon-Waters Co.; B. W. Vinson, B. W. Vinson Co., Inc.; W. W. Woobank, Woobank Pump & Machinery Corp.; Ken Slater, Petroleum Engineer; J. A. Lupfer, Worthington Machinery Corp. of Oklahoma; J. H. Baker, Pittsburgh Equitable Meter Co.; E. P. Dillman, Wyatt Metal & Boiler Works; P. M. Raigorodsky, Petroleum Engineering, Inc.; Geo. Reed, Refiner and Natural Gasoline Manufacturer; Warner Lewis, Ralph N. Brodie Co.; Arch Foster, National Petroleum News; A. V. B. Candler, National Supply Co.; Allen James, National Petroleum News; D. W. McKay, Cooper-Bessemer Corp.; S. D. Hunt, Moorlane Co.; H. M. Rosevear, Wyatt Metal & Boiler Works; Egon Koehler, Moorlane Co.; G. B. Lane, Foxboro Co.; E. Klappenbach, The Oil and Gas Journal; A. J. Kerr, Pittsburgh Equitable Meter Co.; J. H. Satterwhite, Wescott & Greis; W. A. Schlueter, Refinery Supply Co.; M. H. Kotzebue, Tulsa Boiler & Machinery Co.; A. M. Buxton, Cooper-Bessemer Corp.; W. G. Palmer, Smith Separator Corp.; W. D. Moorer, Moorlane Co.; R. P. Mase, Burrell-Mase Engineering Co.; L. G. Marsh, Taylor Instrument Co.

More Volatile Motor Fuels Could Be Used to Advantage

Although it has been generally recognized for some time that the potential value of a motor fuel depends upon its volatility and upon its antiknock quality, the full benefit of the use of fuels of high volatility, or the fuels of high antiknock value (high octane value) cannot be obtained unless the engine in which such fuels are used is designed to take full advantage of the property of high volatility or high octane number. The advantages in the use of high octane gasoline can be obtained by the use of motors of high compression ratio, and this fact has been brought forcibly to the attention of the industry by the adoption of the octane number scale to define the antiknock quality of the fuel and the production of high compression motors which require the use of high octane fuel for the most satisfactory operation.

The present investigation being conducted for the Natural Gasoline Association of America is to determine the advantages in the use of fuels of high volatility in motors designed to make the best possible use of such fuels, and to determine what changes if any are necessary in the engines themselves in order to obtain full benefit of the potential value inherent in fuels of high volatility.

It is physically impossible to investigate all of the cars on the road or in current production. After a careful preliminary survey it was decided that the 1934 Master Chevrolet appeared to be the most suitable motor for conducting this investigation. There are a large number of such cars on the road and it represents a modern design of fuel plant which can be readily modified to remove the exhaust heat from the intake manifold and to operate at low mixture temperatures.

Apparatus

Figure 1 is a photograph of the car used in these tests showing the mounting of the fifth wheel speedometer for determining accurately the speed at which the car is operating. In making acceleration tests the standard speedometer with which the car is equipped is not of sufficient accuracy for obtaining satisfactory results, and the fifth wheel drive, an electric tachometer as shown, was used during all acceleration tests. All tests were conducted on a level stretch of highway along a straight measured mile. Each test consisted of two parts, one run in each direction over the same part of the highway. This precaution was taken for the purpose of eliminating by averaging the results, the effect of wind and any irregularities in the level of the road. The wind velocity and the atmospheric temperature were measured by means of the wind gauge and thermometer shown mounted on the post in the front of the car in Figure 1. This so-called weather station was set midway of the mile course and readings taken at regular intervals during the tests.

The fuel consumption was measured by means of the burettes shown mounted in the car in Figure 2. The motor was supplied from one of these burrettes as the car was driven at constant speed approaching the measured mile. At the instant the car passed the marker for the beginning of the mile run, an operator closed the cock at the lower end of the burette supplying the carburetor and started the stopwatch shown on the recording tablet in Figure 2. He then opened the valve on the other burette and the car was driven at constant speed over the mile course and at the instant it passed the marker indicating the end of the measured mile the second burette which supplied the fuel to the carburetor during the mile run was shut off by closing the cock at the bottom of the burette, the stopwatch was stopped and the amount of fuel consumed as indicated in the second burette was recorded along with the time taken to cover the measured mile. The car was then driven to the end of the course, turned around, and the same procedure repeated covering the measured mile in the opposite direction. The results of the two runs were averaged in order to obtain the fuel consumption and speed of operation over the mile course.

DR. G. G. BROWN'S PAPER

The accompanying article has been compiled from the notes taken on the more or less extemporaneous preliminary report made at the fourteenth annual convention of the Natural Gasoline Association of America by Dr. G. G. Brown of the University of Michigan on the research project being conducted under his direction at the University of Michigan for that organization. Doctor Brown indicated that though many of his findings had not been completely checked for their mathematical accuracy, the general conclusions were substantially correct.

Acceleration Tests

In making acceleration tests the speed of the car is constantly changing and cannot be computed by timing the car as it is driven over a measured distance. For this reason the fifth wheel electric speedometer shown in Figure 1 was used with the indicator mounted vertically on the dash of the car in front of the observer. (See Figure 3). In making the acceleration tests the car is driven at a constant speed for a specified distance and when passing the marker for the beginning of the measured mile the throttle is fully depressed. At the same instant the two stopwatches shown in the hands of the observer in Figure 3 are started. As soon as the car has gained speed of 10 miles per hour as registered by the indicator directly in front of the observer, one of the stopwatches is stopped, and as soon as the car has gained in speed 20 miles per hour the second stopwatch is stopped. The consumption of fuel during the accelerating period is measured by means of the burette method previously described.

The portable potentiometer held on the lap of the observer (Figure 3) is used for measuring the temperature of the mixture in various parts of the manifold, the temperature of the gasoline in the carburetor, the temperature of the air directly in front of the radiator, directly behind the radiator and entering the carburetor, as well as other significant temperatures. The vertical column shown mounted alongside of the windshield just within the corner of the door in Figure 3 is for determining the vacuum in the intake manifold during the test runs.

In addition to mileage at constant speed and acceleration starting at intervals from 5 to 35 miles per hour, the top speed was also determined as a measure of the maximum power developed by the motor. This maximum speed was obtained by driving the car at full throttle and timing the run over the measured mile by means of the stopwatches.

This procedure gives complete information as to the power developed by the engine at the lower speeds as evidence in the acceleration tests, and the top speed as indicated by the maximum speed at which the car can be driven. It also gives us the mileage obtainable under steady driving conditions at all speeds. Since power and mileage are the two essential factors in performance, this procedure gives all the necessary information to determine the performance obtained in the use of the various fuels under test.

The fuels used in the tests conducted so far as three in number and have the following properties as determined at the point of shipment.

The described properties of the fuels were bound to be substantially identical when actually used in the test runs, but the octane numbers as determined on the C.F.R. engine at the university just prior to the test runs were as follows: Fuel No. 1, 65.9; Fuel No. 2, 65, and Fuel No. 3, 65.6.

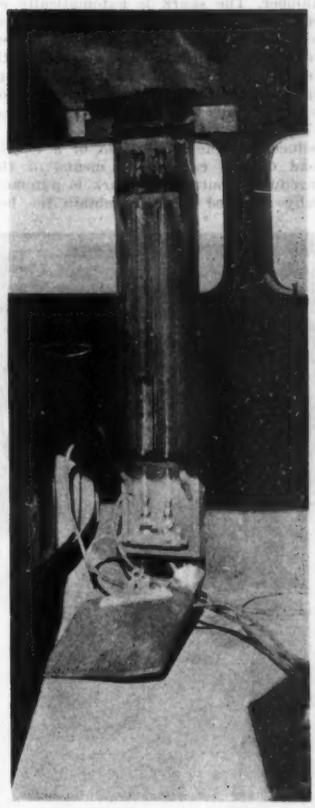


Fig. 2—Fuel consumption was measured by using burettes mounted in the car

TABLE 1—MOTOR FUELS USED

	Fuel No. 1	Fuel No. 2	Fuel No. 3
10% evap.	117°	137°	151°
50% evap.	138°	198°	260°
90% evap.	201°	290°	382°
Octane No. M.M.	65.2	63.9	63.2
°A.P.I.	78.1	66.1	65.1
Reid vapor pressure	10.15	7.15	7.05

Since the octane numbers of these fuels are substantially the same, any difference in the results obtained are due entirely to difference in the volatility characteristics of these fuels.

Volatility Number

Although no single number is generally recognized as indicating the volatility of motor fuels, the volatility number or volatility index suggested by Oberfell and Alden[1] is a most convenient scale for indicating motor fuel volatility and will be used in reference to these three fuels which have volatility numbers of 146, 76 and 24 for Fuels 1, 2 and 3 respectively. The volatility number is obtained by subtracting the temperature of the 50 per cent evaporated point in the A.S.T.M. distillation from 284° F. which is the 50 per cent point for U. S. Motor fuel.

It is generally recognized that the use of fuels of high volatility invariably give better performance in cold weather. For this reason the car with standard equipment and adjustment exactly as delivered from the factory was tested completely under weather conditions as existing in Michigan at atmospheric temperatures at about 20° F. For these tests the octane selector on the car was set for the high of incipient detonation for each of the fuels as tested.

This octane selector is essentially a spark advance adjustment which is made on the distributor at the side of the engine. It bears a scale numbered from 10 retard up through zero to 10 advance. The zero point is set at about 10 degrees advance before top dead center and is suitable for fuels of about 65 octane

Fig. 1—General view of test car used by Dr. G. G. Brown showing fifth wheel speedometer attachment

number. The spark is automatically advanced by means of a centrifugal device which may give as much as 36 degrees additional according to the speed of the engine. There is an additional control operated by the suction in the manifold which retards spark timing as much as 17 degrees as the manifold vacuum is reduced by the application of a heavier load on the engine. By means of this ingenuous control the spark is automatically adjusted so as to obtain the best operating conditions, and it is simple to set the octane selector or manual adjustment to the point which corresponds to the octane number of the fuel being used.

Fig. 3—Acceleration was measured by using two stop watches

In conducting these tests it was found that Fuel 3 required a setting at the zero point on the octane selector to obtain just incipient detonation when operating at full throttle at a constant speed of 26 miles per hour when climbing a steep grade. Fuels 2 and 1 required about 3 degrees retard from this zero position for the point of incipient detonation as determined in the same manner, but with all other adjustments exactly the same. Since 3 degrees at this point of the octane selector scale is equivalent to about 6 octane numbers, the car used in these road tests rates Fuel 3 about 6 octane numbers higher than Fuels 1 and 2, although all three fuels were found to have substantially the same octane number when tested according to the current A.S.T.M. procedure.

A clearer and complete explanation for this difference cannot be given but it appears that part of this difference is due to the fact that Fuel 3 contained 45 per cent of cracked gasoline from Gulf Coast crude while Fuels 1 and 2 were substantially all straightrun material, and partly due to the poor distribution in the manifold when using Fuel 3 causing some cylinders to be supplied with over-rich mixtures and others with lean mixtures. When the standard car was tested with all standard adjustments and the octane selector set in the manner described, the following results were obtained when using Fuels 1, 2 and 3 as described in Table 1.

Improved Acceleration

Comparison of these results indicates that the acceleration is greatly improved by the use of fuels of high volatility, and that the fuel consumption is somewhat increased by the use of high volatility fuels in the lower speeds, but is substantially the same for the high volatile and low volatile fuels at the higher speeds.

If we use as our standard of comparison the less volatile fuels, Fuel 3 with a volatility number of 24, and compare the acceleration obtained by substituting Fuel 2 with a volatility number of 76, we find an average gain in acceleration with exactly the same carburetor adjustment of about 52 per cent which corresponds exactly to the increase in volatility number of 52. Similarly if we compare the average acceleration with Fuel 1, having a volatility number of 146 with that of Fuel 3, we find an average improvement of about 61 per cent for the corresponding increase in volatility number of 122. The corresponding gain in acceleration is obtained during the first part of the accelerating period when the speed is increased 10 miles per hour, and particularly from initial speeds of about 15 or 20 miles per hour. The average for the first period of acceleration is about 88 per cent gain for Fuel 2 and the poorest acceleration is obtained from Fuel 3; thus we found over 125 per cent improvement in acceleration by using Fuel 2 in place of Fuel 3. Although Fuel 2 would appear to possess sufficient volatility to give the best improvement, a noticeable further improvement is obtained by the use of Fuel 1 which shows a corresponding improvement of 160 per cent for the first accelerating period. The fact that Fuel 1 gives practically uniform and perfect acceleration from all initial speeds indicates that no further gain is to be expected by the use of fuels of any greater volatility. During the second part of the accelerating period after the car has already gained a speed of 10 miles per hour, the relative gains are less startling but correspond in about the same manner, being about 16 per cent for Fuel 2 and 21 per cent for Fuel 1 as compared with Fuel 3.

Even after adjusting the carburetor so as to give the maximum accelerating change when using Fuel 3, the improvement observed by the use of the more volatile fuels is almost as great except when starting from the low initial speed of about 5 miles per hour. The average improvement for Fuel 2 being 33 per cent and for Fuel 1 being 41 per cent as compared with Fuel 3 when using a carburetor adjustment intended to give the best acceleration from Fuel 3.

Clearly this car is so designed and adjusted as delivered from the factory as to obtain its best performance in cold weather only with the most volatile fuels now obtainable. This is in general agreement with the observations of all users of motor cars that best results can be obtained in cold weather only with the most volatile fuels available. The only disadvantage to the use of such fuels on cars when adjusted according to the standard or factory adjustment, is a loss in mileage when operating at the lower speeds due to the over-rich mixture supplied by such an adjustment. If the carburetor is properly adjusted for these more volatile fuels the mileage can be greatly improved without loss in performance, so that the superior performance indicated in Table 2 may be retained by the use of the more volatile fuels with only an insignificant loss in mileage. Incomplete tests indicate that the mileage obtainable from Fuel 1 at a speed of 20 miles per hour may be increased to at least 21.5 miles per gallon by proper adjustment of the carburetor as compared with a maximum mileage of 22 miles per gallon as obtained with Fuel 3. The infinitely better performance obtainable from Fuel 1 under these conditions more than compensates for the insignificant loss in mileage of about 2 per cent at 20 miles per hour, particularly when consideration is given to the fact that the fuel consumption at high speeds is the same for Fuels 1 and 3 under these conditions.

If the driver is concerned with mileage alone regardless of performance, it is to be expected that better mileage may be obtained with the least volatile, or heaviest fuel. The heaviest fuel contains the most pounds per gallon and therefore can deliver the greatest quantity of energy per gallon. But if equal performance is demanded, superior mileage can always be obtained from the use of the more volatile fuels.

Because the car as designed and delivered from the factory was capable of using the high volatile fuels without modification, no changes were made in the carburetor or manifold system for these cold weather tests.

During the warmer weather when the atmospheric temperature was approximately 60° F. another series of tests was conducted with the motor operated in the standard manner except that the carburetor was properly adjusted for the use of the more volatile fuels; and an additional series of tests was run with the heat removed from the intake manifold and with the engine cooling system modified so that the engine would run as cool as possible. These modifications were simple and included no fundamental change of any kind in the engine. Figure 4 shows the changes which were made in order to decrease the mixture temperature as delivered to the cylinders. It will be observed that the intake manifold has been insulated by wrapping with asbestos and tape. The exhaust gases were shut off from the hot spot surrounding the intake manifold by blocking off the exhaust manifold by means of two thick sheets of asbestos with a sheet of metal between them. In order to keep the cooling water as cool as possible the automatic thermostat which restricts the flow of water from the engine to the radiator was removed. When operating in this manner with the more volatile fuels, it was found that ice would collect on the throttle and in the venturi of the carburetor. In order to eliminate this difficulty the gasoline was heated to a temperature of about 105 to 110° F. by passing exhaust gases around a coil through which the gasoline flowed on its way to the carburetor. This exhaust heater is shown as the small white insulated cylinder just below and to the left of the air filter in Figure 4. In setting the octane selector for these tests with the carburetor properly adjusted for the different fuels, it was found that a difference of 4 degrees in spark advance was necessary to bring Fuels 1 and 3 to the corresponding points of incipient detonation. This would indicate an approximate difference of 8 octane numbers in Fuels 1 and 3 as determined by these road tests. This great difference as compared with that reported for the cold weather tests when the same carburetor adjustment was used for both fuels, is due to the fact that with proper carburetor adjustment for each fuel, each fuel is used with the mixture ratio giving the greatest tendency for detonation.

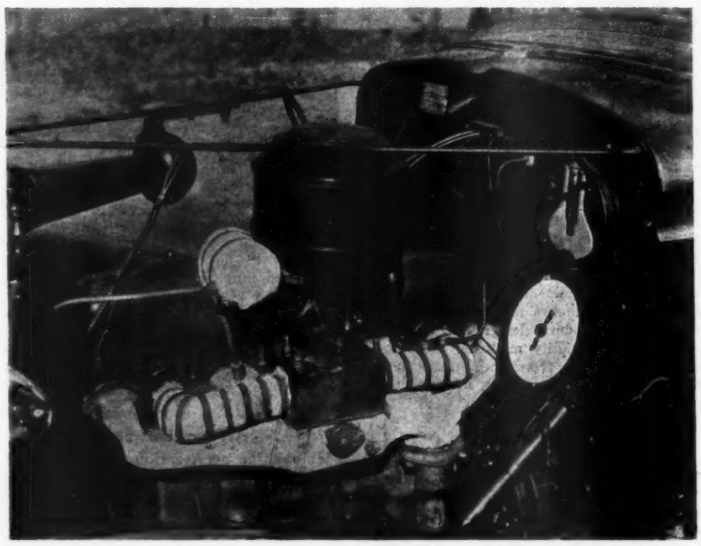


Fig. 4—Engine modifications to test motor fuels of wide volatility range

Preliminary tests to determine the temperature of the mixture as it enters the ports in the engine block indicate that the mixture temperature is approximately 100 degrees above the atmospheric temperature at low speeds, and approximately 60 to 80 degrees above atmospheric temperature at high speeds. When the

(Continued on Page 68)

TABLE 2—SHOWING ACCELERATION IN FEET PER SECOND. ATMOSPHERIC TEMPERATURE 20° F.

	Standard carburetor adjustment-intermediate stroke on accelerating pump metering pin 65-46, orifice .059						Long-stroke on accelerating pump	
	Fuel 1		Fuel 2		Fuel 3		Fuel 3	
Init. speed in miles per hour	First speed increment of 10 miles per hour	Second speed increment of 10 miles per hour	First speed increment of 10 miles per hour	Second speed increment of 10 miles per hour	First speed increment of 10 miles per hour	Second speed increment of 10 miles per hour	First speed increment of 10 miles per hour	Second speed increment of 10 miles per hour
5	3.04	2.9	2.9	2.72	1.85	2.38	2.73	2.35
10	3.1	2.94	2.93	2.79	1.5	2.29	1.66	2.14
15	3.01	2.98	2.83	2.68	1.14	2.0	1.33	2.48
20	3.04	3.01	2.78	2.8	1.2	2.53	1.38	2.63
25	3.1	2.79	2.88	2.71	1.47	2.55	1.75	2.88
30	3.02	3.04	2.86	2.57	1.85	2.42	2.17	2.47

Mid-Continent Refining Operations Remain Low Giving Aid to Market

By GEORGE WEBER

According to estimates made at the first of the month, crude runs to stills in the Mid-Continent will continue at much the same level as the April schedules. While the total daily runs will average 466,015 bbls., a slight decrease of 1,750 bbls. from the April total, most of the eight districts report slight increases. The East Texas district is the exception and estimated to curtail runs 6,750 bbls. per day. In Kansas, schedules are being continued without change in most cases, with some of the larger refineries operating at slightly lower figures. Oklahoma and North Central Texas are stepping up refining activity to some extent. In Oklahoma the Wirt Franklin Petroleum Corp. has closed its plant at Ardmore for an indefinite period. The Wilcox Oil & Gas Co. has reopened its plant at Bristow after a shutdown lasting since February. About 1,600 bbls. of crude are being topped per day this month. The Johnson Refining Co. of Cleveland reports its plant shut down during the last half of April.

Several changes have taken place in North Central Texas during the month. The Panhandle Refining Co. has purchased the refining properties of the Paragon Refining Co. of Leuders, Tex., and is running about 275 bbls. per day during May. Improvements and enlargements are being made at the refinery. Included in the purchase was a 6-mile pipe line. The Allstate Refining Co. of Thrall and the Taxman Refining Co. of Wichita Falls have reopened their plants. The Star Refining & Producing Co. and the Texas Pacific Coal & Oil Co. report their plants at Fort Worth shut down this month. The Archer Refining Corp. of Megargel, Tex., has sold all of its properties, including the 1,000-bbl. skimming plant at Megargel, to the Co-operative Consumers Refinery, Inc. Stock in the new concern is owned by James H. White, W. C. Duncan and G. M. Howard, who also operate the Plains Gas & Fuel Co. at Wichita Falls. The refining company's office is located in the Waggoner Building, Wichita Falls.

Runs in Arkansas and North Louisiana will show some increase. The Bayou State Oil Corp. is again operating its plant at Hosston, La.

The 6,750-bbl. decrease estimated for East Texas during May is entirely dependent upon the activity of state courts in granting movement of oil stored in open pits. A decrease is estimated by authorities due to the movement of much of the injunction oil, and the fact that the courts are now holding against the refineries in regard to more of this oil. However, heavy rains have caused much loss in oil stored in open pits due to the weakening of the dikes and there is a possibility that much of this oil will be granted outlet in view of the emergency. About 125,000 bbls. of fuel oil were loosed May 5 in Gladewater by a weakened dike, and other losses are expected. A local district judge has stated that regardless of injunctions, he is planning to grant movement of this oil. This action will relieve the overstocked condition in the plants and will lead to increased refining activity which may bring this month's total to the level of April. The plant of the Southern Oil Refining Co. at Tyler has been repossessed from B. J. Ward, who has been operating it since June, 1934, as the Pacific Refining Co.

The refining outlook in the Mid-Continent is considerably brighter this month than it was in May, 1934. More crude is being run to stills and the prices of most refined products are decidedly above those of a year ago. East Texas is operating at a total of about 12,000 bbls. daily under the total of a year ago. Altogether, the even schedules of operation through the area in the face of rising prices point to a strong market for refined products in the near future.

Mid-Continent Refinery Crude Runs

Average Daily Crude Runs (Barrels)

(Advance estimate compiled by The Oil and Gas Journal)

	1931	1932	1933	1934	1935
January	478,795	405,910	399,405	448,360	426,070
February	470,125	411,280	407,125	456,619	448,810
March	449,634	401,155	423,445	465,680	451,510
April	497,391	419,391	441,000	458,220	467,765
May	510,540	436,160	470,460	457,165	466,015
June	567,915	440,765	479,987	459,908	.....
July	588,840	433,255	525,845	477,012	.....
August	590,545	427,710	518,510	501,750	.....
September	588,105	430,430	526,749	499,830	.....
October	472,190	401,995	495,756	500,755	.....
November	480,440	408,180	481,335	500,445	.....
December	456,525	416,275	434,275	440,735	.....

Operations by Refinery Districts

	May dly. crude capacity	May dly. crude runs	April dly. crude runs	May daily decrease
Arkansas	38,150	20,400	19,250	*1,150
East Texas	231,800	53,690	60,440	6,750
Kansas	179,450	117,610	119,040	1,430
North Central Texas	108,680	39,715	37,705	*2,010
North Louisiana	55,450	22,150	22,000	*150
Oklahoma	296,200	141,010	138,620	*2,390
Southwest Texas	26,300	15,890	15,810	*80
West Texas and Panhandle	125,820	55,550	54,900	*650
Total	1,062,250	466,015	467,765	1,750

*Increase.

OKLAHOMA

Company and location—	Daily capacity	Aver. daily runs— May	April
Anderson-Prichard Oil Corp., Cyril	6,000	5,000	4,500
Altitude Petroleum Corp. (J. H. Peacock Refining Co.) Oklahoma City	3,000	(*)	(*)
Associated Petroleum Corp., Allen	8,000	(*)	(*)
Barnsdall Oil Co., Barnsdall	6,000	3,500	3,500
Barnsdall Oil Co., Okmulgee	10,000	5,500	5,500
Bell Oil & Gas Co., Grandfield	4,500	2,700	2,700
Black Gold Refining Co., Oklahoma City	2,500	1,500	1,200
Century Petroleum Corp., Oklahoma City	2,500	(*)	*()
Champlin Refining Co., Enid	16,000	6,000	6,000
Continental Oil Co., Ponca City	30,000	15,000	15,000
Crescent Refining Co., Holdenville	1,000	(*)	(*)
Cushing Refining & Gasoline Co., Blackwell	1,700	1,600	1,500
Cushing Refining & Gasoline Co., Cushing	6,700	4,100	4,200
Deep Rock Oil Corp., Cushing	10,000	9,000	9,000
Eason Oil Co., Enid	5,000	2,500	2,500
Empire Oil & Refining Co., Okmulgee	4,000	2,200	2,200
Empire Oil & Refining Co., Ponca City	12,000	8,800	8,900
Globe Oil & Refining Co., Blackwell	7,500	(*)	(*)
Government Refining Co., No. 1, Oklahoma City	1,000	(*)	(*)
Government Refining Co., No. 2, Oklahoma City	3,500	(*)	(*)
Government Refining Co., No. 3, Seminole	800	(*)	(*)
Hanger Refining Co., Oklahoma City	1,000	(*)	(*)
Johnson Oil Refining Co., Cleveland	6,000	4,500	4,500
Major Petroleum Products Co., Oklahoma City	2,000	450	450
Marathon Oil Co., Bristow	5,000	2,260	2,670
Mid-Continent Petroleum Corp., West Tulsa	40,000	18,000	18,000
Monarch Refiping Co., Oklahoma City	1,000	300	300
Omar Refining Co., Garber	8,000	2,500	2,200
Paramount Refining Co., Oklahoma City	2,000	800	800
Peppers Gasoline Co., Oklahoma City	500	150	150
Phillips Petroleum Co., Okmulgee	6,000	4,200	5,000
Pure Oil Co., Muskogee	9,000	7,600	7,300
Rock Island Refining Co., Beckett	6,000	3,200	3,200
Sinclair Refining Co., Sand Springs	8,000	2,900	2,900
Sinclair Refining Co., West Tulsa	6,000	(*)	(*)
Sun Oil Co., Yale	5,000	2,000	2,000
Sunray Oil Co. (C. E. Wright, receiver), Allen	7,000	2,100	2,000
Texas Co., West Tulsa	15,000	12,000	12,000
Tide Water Oil Co., Drumright	15,000	8,500	7,000
Triangle Producing & Refining Co., Oklahoma City	1,000	450	450
Wilcox Oil & Gas Co., Bristow	5,000	1,600	(*)
Wirt Franklin Petroleum Corp., Ardmore	4,000	(*)	1,000
Yale Oil Corp., Yale	2,000	(*)	(*)
Total	296,200	141,000	138,620

*Shut down.

NORTH CENTRAL TEXAS

Company and location—	Daily capacity	Aver. daily runs— May	April
Allstate Refining Co., Thrall	2,300	1,200	(*)
Atlantic, Pacific & Gulf Refining Co., Wichita Falls	5,000	(*)	(*)
Baird Refining Co., Baird	1,400	1,300	800
Canyon Oil & Gas Co., Inc., The, Cisco	500	(*)	(*)
Continental Oil Co., Wichita Falls	6,000	3,300	4,000
Co-operative Consumers Refinery, Inc., Megargel	1,000	200	200
Empire Oil & Refining Co., Gainesville	5,000	(*)	(*)
Exchange Petroleum Corp., Albany	500	250	220
Falls Refining Co., Wichita Falls	2,000	300	300
Gratex Refining & Fuel Co., Graham	500	170	170
Gulf Refining Co., Fort Worth	10,000	3,610	3,400
Gulf Refining Co., Sweetwater	5,000	3,870	4,000
Haskell Oil Refining Co., Breckenridge	200	(*)	(*)
Hightower Oil & Refining Corp., Brownwood	750	400	300
Hill Refining Co., Ballinger	80	50	50
Jacksboro Refining Co., Jacksboro	50	50	50
LaSalle Petroleum Co., Burkburnett	3,500	600	500
Magnolia Petroleum Co., Fort Worth, No. 1	12,000	5,500	5,490
Magnolia Petroleum Co., Fort Worth, No. 2	6,000	(*)	(*)
Marathon Oil Co., Fort Worth	5,000	3,500	3,670
Moutray Refining Co., Hawley	600	240	275
Meunster Refining Co., Meunster	200	150	150
New Deal Refining Co., Abilene	300	(*)	(*)
Nolting Refining Co., Sweetwater	1,000	(*)	(*)
Norgold Refining Co., West Olney	400	200	200
Olney Oil & Refining Co., North Olney	3,000	1,800	1,500
Omega Refining Co., Brownwood	200	(*)	(*)
Phoenix Refining Co., Hawley	800	500	500
Panhandle Refining Co., Wichita Falls	5,000	2,600	2,500
Panhandle Refining Co., Leuders	750	275	150
Pentex Refining Co., Echo	400	(*)	(*)
Pilot Point Refining Co., Pilot Point	500	100	100
Sinclair Refining Co., Fort Worth	5,000	2,500	2,500
Southtex Refining Co., Trent	250	(*)	(*)
Southland Refining Co., Olney	1,000	(*)	(*)
Starlight Refining Co., Inc., Ballinger	500	300	300
Star Refining & Producing Co., Fort Worth	1,200	(*)	170
Superior Refining Co., Tiffin	800	(*)	(*)
Taylor Refining Co., Taylor	6,000	1,000	1,000
Taxman Refining Co., Wichita Falls	3,500	2,200	(*)
Texas Pacific Coal & Oil Co., Fort Worth	3,000	(*)	2,200
Texas Pacific Coal & Oil Co., Caddo	1,000	700	160
Tucker Refining Co., Wichita Falls	200	150	150
Waggoner Refining Co., Electra	6,000	2,500	2,500
Watt Refining Co., Brownwood	200	200	200
Total	108,680	39,715	37,705

*Shut down.

ARKANSAS

Company and location—	Daily capacity	Aver. daily runs— May	April
Berry Asphalt Co., Waterloo	2,000	950	1,000
Henry H. Cross Co., Smackover	6,000	3,500	3,000
Lion Oil Refining Co., El Dorado	12,000	8,500	8,000
Macmillan Petroleum Products Co., Norphlet	2,300	2,200	2,000
Ouachita Valley Refining Co., El Dorado	2,500	(*)	(*)
Root Refining Co., El Dorado	10,000	5,000	5,000
Simms Oil Co., Smackover	3,000	(*)	(*)
Stephens Refining Co., Stephens	750	250	250
Total	38,550	20,400	19,250

*Shut down.

(Continued on Page 68)

Solvent Extraction of Petroleum Fractions

By JOHN DICKINSON
M. W. Kellogg Co., New York*

According to the best information available there are operating, building, and authorized, a total of 22 solvent plants in the oil refineries of the United States today. The total rated charging capacity of these plants is about 45,000 bbls. per day. Assuming a finished oil yield (after dewaxing in some cases, and at least finishing treatment in all cases) of 60 per cent of the charge to solvent plants, there will be in operation this year sufficient solvent capacity to finish 27,000 bbls. of lubricating oil per day.

Now let us consider production and consumption figures on lubricating oils in the United States for the past few years.

The total production of lubricants in the United States in 1934 amounted to an average of 72,300 bbls. per day. Approximately 50,700 bbls. of this production was consumed within the United States and the balance, 22,500 bbls. per day, exported. Imports of lubricating oil have always been so low as to be negligible in affecting the domestic situation. Of the 50,700 bbls. consumed within the United States in 1934, it is estimated that 28,700 bbls. were used as motor lubricants. The balance of domestic consumption, representing 22,000 bbls. per day, was used for general purposes as industrial oils.

The peak year of lub production in the United States was 1928, when the total production averaged 94,700 bbls. per day. Peak domestic consumption was reached in 1929, when 64,700 bbls. were used per day. Assuming the same ratio of motor oils to industrial oils as existed in 1934 (motor oils 56.7 per cent of the total) the consumption of motor oils in 1929 would have been 36,600 bbls. per day.

Solvent Refined Lub

Referring back now to the estimated finished solvent treated oil capacity of 27,000 bbls. per day some time in 1935, you will note that this figure closely approximates the estimated motor oil consumption in the United States in 1934, that it is 53 per cent of the total United States lubricant consumption in 1934, 37 per cent of total United States lubricants produced in 1934, and 29 per cent of the total production of lubricants in the peak year of 1929.

It is apparent from these figures that the oil industry has already gone in for solvent extraction in a big way and probably will not stop until every advertising department can say that the oil it offers to the public has been "washed free of all impurities."

These figures and the general trend will be made clear by a study of Figure 1, in which are plotted by years from 1920 to 1934 the total production of United States lubricants, the indicated United States consumption of lubricants, the estimated motor oil consumption in 1934 (a single point) and the estimated finished solvent treated oil capacity from 1932 on.

Considering now the position of the Pennsylvania oil refiners, it is of interest to refer to a paper on the "Economic Aspects of Solvent Refining in the Manufacture of Improved Lubricating Oils," presented by Wilson and Keith in July of last year at the Pittsburgh meeting of the American Petroleum Institute. Referring to the ability of Mid-Continent refiners to produce by solvent extraction oils as good or better than Pennsylvania oils, the authors said that the Pennsylvania refiners "will shortly be faced with one of the two alternatives":

1. To compete directly with solvent refined oil on a price basis, or
2. To improve the quality of his product and attempt to maintain the same differential as at present.

They came to the conclusion that the second alternative, that of improving quality, offered the most promise as a solution of the Pennsylvania refiners problem and they ventured the opinion that solvent refining might bring about some reduction in filtering costs which would help to offset the cost of using the solvent.

Looking over the list of solvent plants already installed in Pennsylvania refineries and noting the rapidity with which new ones are at present being installed, it would appear that at least many of the Pennsylvania refiners agree with the authors of the above mentioned paper as to the better of the two alternatives.

It is too early yet to predict the eventual place which will be occupied by solvent refining in the oil industry, or to what extent improvements of the process as now applied will assist in reducing costs of application. Certainly, however, it is important and particularly so for the Pennsylvania refiners, that solvent refining be made to pay its way, if this can be made possible. Reduction in filtering cost to offset the use of solvents and utilization at some profit of the degraded product appear to be the most promising present possibilities.

Phenol as Solvent

The various solvents in commercial use today vary in their physical properties and to a greater extent in their selectivity and solvent power for naphthenic oils. Among the solvents commercially used, anhydrous phenol, now applied in four plants, has the advantage over most of the other solvents in requiring a comparatively low ratio of solvent to oil and in giving a greater improvement in color and carbon residue in producing oil of a given viscosity index. From the standpoint of yield, anhydrous phenol alone is neither better nor worse than most of the other solvents, but as recently applied, using water as an additional agent to the extract before removal of the latter from the system, yields are obtained which are above what most other solvents will give. Using phenol in this way, the effect of two solvents is really obtained, since the fresh anhydrous phenol last in contact with the raffinate controls the nature of the raffinate oil, while aqueous phenol in the extract controls the nature of the extract oil removed from the system. Anhydrous phenol, being an excellent solvent for naphthenic oil, prevents any low viscosity index oil coming out with the raffinate, while the aqueous phenol, being a poor solvent for paraffinic oil, prevents any serious loss of high viscosity index oil to the extract. Trapped between two such solvents, one at one end and one at the other, the oil charge is separated most completely into maximum yield of paraffin oil of the desired viscosity index and extract oil of extremely low viscosity index and low A.P.I. gravity. Examples which will further clarify this method of applying phenol will be given later.

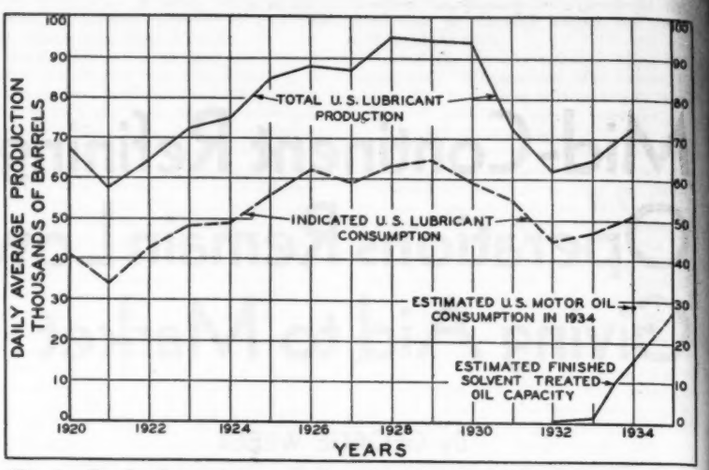


Fig. 1. Production and consumption of lubricating oils from 1920 to 1934.

Aside from the differences inherent in the various solvents available, the most important consideration and probably the one which permits greatest opportunity for improvement, is the mechanics of applying solvents and development of most efficient equipment for securing the desired results. Without going into too much detail we will review the various methods of applying solvents and show what the natural eventual outcome should be.

The efficiency of a solvent extraction system, like most other commercial processes, is very largely dependent upon the method of processing. For example, in distillation processes, the equipment used may vary from a series of low efficiency batch shell stills to a very modern high efficiency tube still and fractionating tower, and the yield and quality of products will change materially. Similarly, the process used for extraction may vary from a single stage contact to true countercurrent operation and the yield and quality of products thus varied more with the changes in the method of operation than with changes from one solvent to another.

The simplest method of extraction of one liquid with another is the single batch type of operation in which the material to be extracted is mixed with the solvent and allowed to settle and be separated. A large portion of the original research work on solvent extraction of lubricating oils was carried out in this manner and it served well to segregate those materials which had some promise of being adapted to commercial use. However, the single batch system requires an excessive amount of solvent and will therefore produce low yields of oil of the required quality. Even in a simple system of two immiscible liquids and one solute, the single batch system demands an excessive amount of the extraction solvent, because the final concentration in the liquid being extracted is determined by the concentration in the entire quantity of extractor. This increase in solvent requirement has an even more detrimental effect when the liquids are slightly miscible and the increase in solvent results in an increased solution of the desirable material in the extracting agent. For this reason, the single batch extraction of lubricating fractions has little, if any, commercial significance.

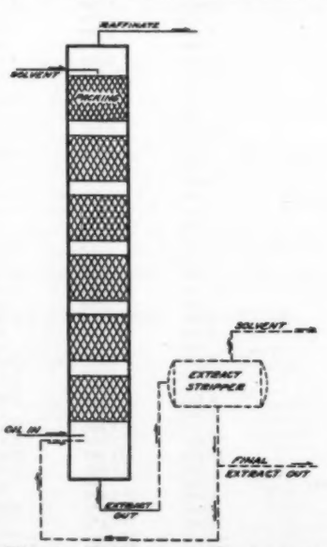


Fig. 2. Packed column for solvent extraction of lubricating oils

The normal method of decreasing the amount of solvent required for an extraction process is by using a number of simple batch extractions and so proportioning the amounts of solvent in each step that the minimum total quantity is used. It can be demonstrated that for a system of two immiscible liquids this minimum quantity is obtained when equal amounts of solvent are used for each step. This system decreases considerably the amount of solvent required, but because of the partial miscibility of the two phases still results in a relatively low yield. It has been shown by several investigators using different solvents that the solvent requirement may be as much as 200 per cent of that necessary in a fully countercurrent system, and that the yield may be as much as 10 to 20 per cent lower.

Packed Column

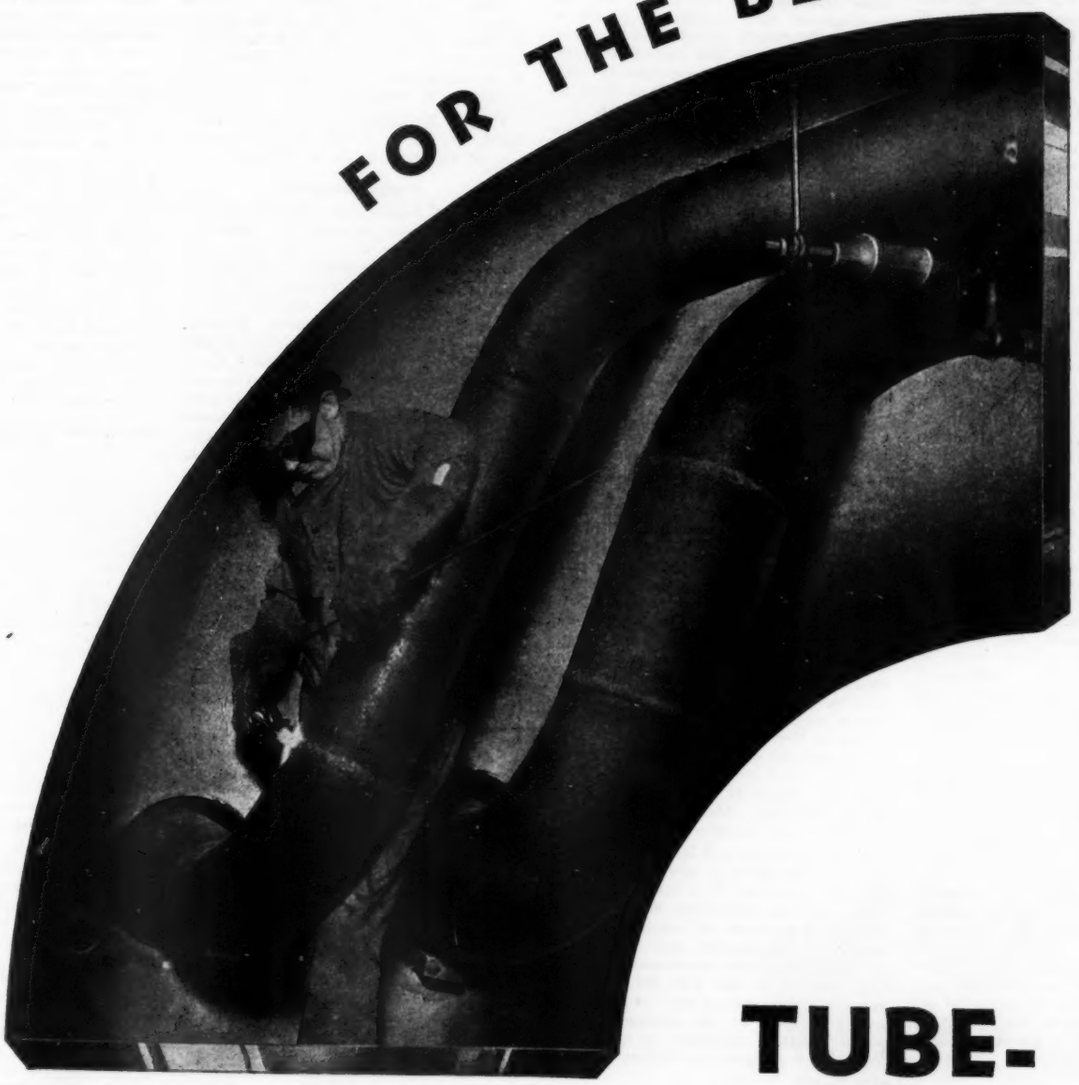
The next step is obviously the countercurrent system, using either a series of mixers and settlers, mixers and centrifugal separators, or a packed column.

The most compact system is represented by the conventional packed column, which provides for the most truly countercurrent operation. A typical diagrammatic sketch of such a system is shown by the solid lines in Figure 2. It is the usual packed tower with the solvent (the heavier material) flowing down from the top, countercurrent to the ascending stream of oil and with raffinate being withdrawn from a small disengaging space at the top and extract from a similar chamber at the bottom. Obviously, various types of packing material can be used, but the degree of mixing required is not great and with ordinary Raschig rings a tower equivalent to six or seven stages can be of practical heighth.

The advantage of the packed column in

*Part of paper presented at meeting of Petroleum and Natural Gas Conference, Pennsylvania State College, April 26-27.

A TURN FOR THE BETTER!



When you turn to welding with Tube-Turns★, you've reached the ultimate in piping. Lighter, stronger, neater. Usually cheaper. Always better because the entire piping system is uniform, like one continuous piece • • That's a condition you can get ONLY with Tube-Turns and welding. . . . Tube-Turns, Incorporated, 405 Herald-Post Bldg., Louisville, Ky.

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solvent extraction over the mixing and settling system is quite analogous to the advantage of the bubble tower over the shell still battery in distillation. The action is more truly countercurrent and the solvent requirement for a given quality should be less and the yield greater. However, the incremental change in these factors is much smaller than in the step from single contact to multiple batch or from multiple batch to stage countercurrent.

Moreover, although the countercurrent tower may be considered as equivalent to the bubble tower in fractional distillation, the method omits one of the vital factors in control of the separation process, namely, reflux. For most efficient operation and for prevention of loss of valuable products in the overhead from a rectifying tower a cooling reflux is used. In the solvent treating process, maximum yield will also depend upon refluxing, and the reflux should be solvent free extract. The most naphthenic oils are most soluble in the solvents and the oils of intermediate paraffinicity may be rejected for further processing by refluxing the bottom of the column with solvent free extract. A diagrammatic presentation of such a refluxing arrangement is shown by the dotted lines of Figure 2.

In an operation of this type, the characteristics of the extract system are determined by the amount of reflux used, because the distribution of the various components of different degrees of naphthenicity is affected by the ratio of solvent to extract. Increasing the ratio of extract components to solvent, or in effect decreasing the ratio of solvent to naphthenes, will result in the rejection of the most paraffinic fractions of the extract which will then be further treated. Although such a system requires more solvent, in the same way that reflux in a fractionating tower requires more heat, yield of a given quality or the quality for a given yield may be increased.

Of course, other methods of obtaining such reflux may be used. For example, the character of the solvent may be changed by decreasing the temperature or adding a modifying component (e.g., water to phenol), or the distribution may be changed by adding a third component to the system which will form an upper layer of more paraffinic components (e.g., use of propane for washing). In all of these cases, the primary object is to reflux the system so that the solvent will not carry away an excessive amount of good oil and by the use of the reflux action increase the yield from the system. In order to obtain the maximum yield, it is imperative that the solvent not be permitted to leave the system in equilibrium with the entering feed, but rather in equilibrium with a more naphthenic material. This equilibrium may be changed by recycling of extract or by changing the character of the solvent or of the upper phase with which it is last in contact.

Phillips Petroleum Co. Advances Two Officials

K. S. Adams, of Bartlesville, Okla., has been advanced from assistant to the president of the Phillips Petroleum Co. to treasurer and a member of the board of directors, and B. F. Stradley has been elected secretary and assistant treasurer, promoted from assistant secretary and assistant treasurer. Mr. Adams is a native Kansan, 36 years of age and Mr. Stradley, also a native of the Sunflower State, is 34.

Mr. Adams served as an officer in the World War notwithstanding his youth, and at the close of hostilities went to Bartlesville to look for a job. He got one working on an ice wagon. A little later he found a job in the Phillips Petroleum Co.'s warehouse and his rise was steady as he advanced through various departments. Mr. Stradley started in the accounting department in 1924 and like Mr. Adams his promotions carried him through different divisions of the company's activities.

Developments in Cracking Are Subject of Discussion at New York Meeting

NEW YORK, May 4.—The seventh regular meeting of the Cracking Development Conference was held here this week with sessions and trips ending today. All meetings were held at the Hotel New Yorker as headquarters. The program included an inspection trip to the Bayway, N. J., refinery, and on the evening of May 2 the Standard Oil Co. of New Jersey group were hosts at a dinner to those attending the conference. Previous meetings of the Cracking Development Conference, which is attended by petroleum technologists and executive representatives from the participating company groups, have been held at Whiting, Ind., New York, and Port Arthur.

Participating at the conference were the Standard Oil Co. (Indiana) group, the Texas Co. group, the Standard Oil Co. of New Jersey group, Gasoline Products Co., Inc., and the M. W. Kellogg Co. group. William F. Moore, vice president and general manager of Gasoline Products Co., who is general chairman of the Cracking Development Conference, presided at the sessions in New York.

The purpose of the Cracking Development Conference is to review technical developments and to consider methods of processing and equipment applicable to the cracking field.

Results Co-ordinated

As cracking technology becomes more complex and its literature voluminous the conference is found increasingly valuable as a co-ordinator of results. It acts as a committee on standards used in the design of equipment and serves as a clearing house for improvements in processing methods. Improvements favorably considered are incorporated by the M. W. Kellogg Co. as designers, engineers, and licensing agents in new plant designs and in the remodeling of present cracking equipment of Gasoline Products Co. licensees. Gasoline Products Co. is concerned with the furtherance and co-ordination of research and development from the standpoint of process and equipment, especially with respect to cracking processes for which it is licensor, such as Cross, deFlorez, Holmes-Manley, Tube and Tank, and combination units.

Development of new features in the design and operation of new equipment for pyrolytic cracking is a function of several associated refineries, the results of which are available to licensees. The co-ordination of research and development by company groups participating in the conference is in line with the increasing general importance which cracking assumes in view of the demand for improved gasoline adaptable as motor fuel for engines designed for higher compression ratios.

Attendance at the conference included the following: Gasoline Products Co., Inc., William F. Moore, general chairman, Walter C. Whitman; M. W. Kellogg Co., N. R. Adams, A. L. Baker, George Creelman, Howard Diming, M. B. Hopkins, Frank Johnson, P. C. Keith, Jr., M. W. Kellogg, W. E. Lobo, C. W. Nofsinger, D. B. Rossheim, L. C. Rubin, Paul F. Swanson, J. T. Ward, D. W. Wilson.

Standard Oil Development Co., L. S. Bonnell, H. G. M. Fischer, Paul E. Kuhl, E. W. Luster, G. M. Maverick, F. L. Newcomb; Standard Oil Co. of New Jersey, H. G. Burks, Jr., J. R. Carringer, C. P. Haller, E. C. Hermann, A. P. Hewlett, C. A. Hillman, B. F. Kenny, M. R. Meacham, H. J. Nichols, Jr., A. C. Patterson, R. S. Piromov, H. R. Poland, O. R. Runge, R. M. Shepardson, D. I. Watkins, B. J. Weidman.

Standard Oil Co. (New Jersey), M. H. Clapp, H. Snyder; Standard Oil Co. of Louisiana, F. H. Edson, E. F. English; Humble Oil & Refining Co., C. F. Kelly, M. W. Mayer; Imperial Oil, Ltd., R. H. Smith, J. R. White; Lago Oil & Transport Co., C. R. Green.

Standard Oil Co. (Indiana), B. K. Brown, A. H. Hayes, W. B. Plummer, J. K. Roberts, F. W. Sullivan, Jr., G. W. Watts; Pan American Refining Corp., R. H. Price, R. E. Wilson; Standard-Vacuum Oil Co., E. N. Leibacher, J. D. Murch; Colonial Beacon Oil Co., Frank Powers.

Texas Co., D. W. Carswell, R. J. Dearborn, L. V. Dorsch, H. A. Grebe, Frank W. Hall, H. G. Hall, W. E. Kuhn, C. E. Lauer, D. C. Lawrence, K. G. Mackenzie, T. A. Mangelsdorf, L. P. Scoville, R. F. Trow, C. W. Watson.

Process Management Co., George Armistead, Jr., H. V. Atwell, W. T. Donaldson, P. O. Dunham, E. D. Phinney.

Topics Discussed

Principal topics discussed during the three-day session included the following: Holmes-Manley Low Liquid Level and Super-Clean Circulation Operations; Whiting Continuous Pressure Stills, General Operating Data on Gas-Oil Cracking and Naphtha Reforming; Holmes-Manley Cracking, Comparative Yields From Virgin and Stripping Plant Cycle Gas Oils by Super-Clean Circulation and Low Liquid Level; Whiting Continuous Pressure Stills, Recent Development Work; Holmes-Manley Super-Clean Circulation, Charge Reflux Exchanger in Bottom of No. 2 Fractionating Tower; Double vs. Single Soaking Drum Operations on Gas Oil; Experimental Two-Stage Gas Oil Cracking at Baton Rouge; Continuous Coking Operations of the Texas Co.; Combination Cracking, Whiting 369 Unit Operations; Combination Cracking, Casper Combination Unit Operations.

Combination Cracking, Texas City Combination Unit Operations; Production of Casinghead Equivalent at the Aruba Refinery; Comparative Yields and Capacities Producing Fuel Oil Directly vs. Blending Heavy Fuel With Light Cycle Stock When Cracking Gas Oil; Segregation of Charge Stocks to Conform to Equipment and Conditions Employed and to Permit Multiple Stage Cracking; the Improvement of Fractionation in Evaporators; Summary of the Work of the Committee on Research; Plant Scale Viscosity Breaking Experiments at Baltimore, Baytown, Baton Rouge and Halifax; Viscosity Breaking by Injection of Reduced Crude in Heater at Maximum Temperature of Clean Oil; A Comparison of the Economics of Viscosity Breaking Residue With Vacuum Distillation Followed by Cracking; Naphtha Reforming Operations, Effect of Distillate Endpoint and Heater Coil Outlet Temperature; A Comparison of the Economics of Naphtha Reforming With the Use of Tetraethyl Lead.

Design and Operation

Equipment, design and operation embraced many subjects for discussion, among which were the following: Pressure Drops in Cracking Furnaces; Design of Heater Tubing; High Temperature Insulation of the Permanent and Removal Types; The Economics of Insulating Oil Refinery Equipment; Design Pressures and Safety Valve Settings for Pressure Vessels; Centrifugal Pump, Operating Results at Bayway and Baltimore; Method of Reducing Scoring on Plungers of Hot Oil Pumps; Instruments and Controllers; Bayway Cracking Equipment and Operations; Tests and Heat Balances on Texas City Combination Cracking Unit.

Summary of the Work of the Committee on Heat Balances; Transfer Line Heat Exchangers; Welding Technique; Methods of Cooling Coke Drums on Continuous Coking Units and Perceptible Effects on the Steel of the Vessels; Correlation of Corrosion Data on Baytown Heater Tubes; Correlation of Corrosion Data on Cracking Units and Pipe Stills; Corrosion Data; Linings for Pressure Vessels; Corrosion Determination and Control.

Administrator's Report on Crude Oil Stocks

WASHINGTON, D. C., May 6.—Stocks of domestic and foreign crude petroleum at the close of the week ended April 27 totaled 324,899,000 bbls., according to data compiled by the Bureau of Mines, Department of the Interior, for Petroleum Administrator Harold L. Ickes. In comparison with data for the previous week, this total represents an increase of 526,000 bbls., comprising an increase of 614,000 bbls. in domestic crude stocks and a decrease of 88,000 bbls. in foreign crude stocks.

Current reports of the industry for the week ended April 27, in comparison with those for the previous week, indicate that crude oil production declined but consumption increased. The approximate daily average production for the week ended April 27 was 2,600,000 bbls., or 20,000 bbls. below the level of the previous week. The largest declines in production were in California and Oklahoma, the largest increase was in Texas. Daily average crude runs to stills amounted to 2,580,000 bbls., or 45,000 bbls. above the average for the previous week. Imports of crude oil, which had been averaging about 85,000 bbls. daily, declined to about 72,000 bbls. daily.

STOCKS OF CRUDE PETROLEUM, APRIL 20 AND 27, 1935
(Barrels of 42 gallons)

Grade of crude oil—	Apr. 20	Apr. 27
Pennsylvania Grade ..	4,578,000	4,664,000
Other Appalachian ...	928,000	936,000
Lima-N. E. Indiana-Michigan	1,248,000	1,239,000
Illinois-S. W. Indiana.	11,569,000	11,594,000
N. Louisiana and Arkansas	10,061,000	10,162,000
West Texas and S. E. New Mexico	31,342,000	31,477,000
East Texas	31,302,000	31,348,000
Other Mid-Continent ..	147,877,000	148,457,000
Gulf Coast	20,774,000	21,013,000
Rocky Mountain	27,613,000	27,661,000
California	33,285,000	32,640,000
Domestic crude	320,577,000	321,191,000
Foreign crude	3,796,000	3,708,000
Total*	324,373,000	324,899,000

*Represents approximately 98 per cent of total stocks in the United States, exclusive of producers' stocks.

PURCHASE OF SIMMS PROBABLE

NEW YORK, May 6.—Probable purchase of the Simms Petroleum Co. by Tide Water-Associated Oil Co. was indicated at the annual meeting of the latter company. "The negotiations have not reached the point where I may say that the purchase will be made," William F. Humphrey, president, said. "We are hopeful that parties to the purchase can reach an understanding."

A majority of the stockholders of Tide Water-Associated approved classification of directors for one, two and three-year periods and thereafter for three-year terms. Henry W. de Forest, H. Paul Grimm, William F. Humphrey were elected for three-year term. For the shorter terms Adolphe Boissevian, Robert McKelvy, Paul Shoup, Elisha Walker, Alden Anderson, George N. Armsby, J. Paul Getty and E. H. Salrin were elected.

PIT OIL DECISION

DALLAS, Tex., May 6. — District Judge D. S. Meredith, Jr., in a statement regarding his decision on removal of pit oil in Gladewater, said:

"My injunction only modified to extent that oil which may pollute Sabine River may be moved, but not for sale. Removal may only be made under rules and regulations of the Railroad Commission, otherwise injunction to remain in full force and effect."

The question of pit oil disposal arose when heavy rains resulted in a break in an earthen pit holding approximately 125,000 bbls. of fuel oil, permitting much of 100,000 bbls. lost to enter waters of the Sabine River.

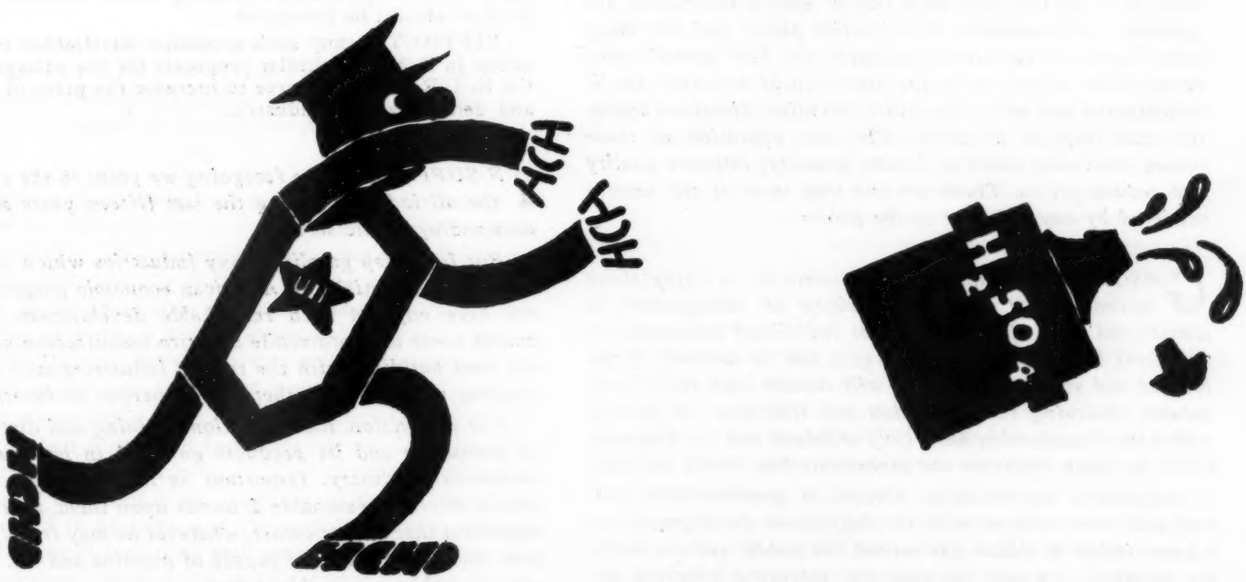
IN MANY A REFINERY the chemical cop has entirely banished acid treating of cracked gasoline

That saves cost of chemicals, it saves gasoline and it saves anti-knock value —which means money for the refiner

When the chemical cop goes to work in your refinery your gum troubles go out and your treating costs go down

Scores of refiners have found that out

You can if you want to—just send us fresh samples of your cracked gasoline



Universal Oil Products Co
Chicago Illinois

Dubbs Cracking Process
Owner and Licensor

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A Petition to the CONGRESS

Submitted by the
AMERICAN PETROLEUM INSTITUTE

The AMERICAN PETROLEUM INSTITUTE, with a substantial and representative membership from a $12,000,000,000 industry, which has more than 2,000,000 owners and over 1,000,000 employes, respectfully petitions Congress to pursue policies which will permit this industry to take its rightful place in the march of recovery.

The Institute asks this with full appreciation of the earnest endeavors which have been made by the federal authorities, in the past two years, to speed recovery. These efforts the petroleum industry has generously supported, recognizing that in a time of such emergency it had a patriotic obligation to co-operate in bringing about re-employment and restoring the country's purchasing power. Its annual payroll, approximating $1,569,600,000, is practically equal to the 1929 payroll, and in real wages it is 7.2 per cent higher. In fact the per capita yearly wage paid by most of the oil companies has always ranked high in industry. In the past two years the industry reabsorbed 217,200 persons. Taxes on its properties, products and operations contribute $1,250,000,000 annually toward the maintenance of government.

The Institute believes that the people who depend upon our 24,600,000 automobiles for transportation, the farmers who cultivate the land with tractor drawn equipment, the operators of thousands of industrial plants and the many other users of petroleum products are best served when competition is free, when the operation of economic law is unhampered and when the profit incentive stimulates initiative and inspires invention. The free operation of these forces inevitably tends to insure quantity, improve quality and reduce prices. These are the true tests of the service rendered by any industry to the public.

GASOLINE consumers cannot continue to enjoy these advantages if the responsibility of management is transferred from the thousands of individual companies to a federal bureau. These advantages can be assured if the federal and state governments will remain each in its own sphere, observing the separation and limitation of powers which the Constitution has wisely ordained and the Supreme Court by many decisions and precedents has clearly defined.

Legislative uncertainties, threats of governmental control and interferences with the legitimate development of a great industry which has served the public satisfactorily are handicapping our business and retarding progress toward a constructive solution of our problem.

OUT OF an intimate knowledge of conditions and a long experience in serving the American people we feel qualified to offer a program of principles which will materially assist in stabilizing conditions under which the oil industry can operate to the direct advantage of both makers and users of petroleum products. We respectfully submit:

FIRST: That there should be a minimum of regulation by government, state or federal, to the end that private industry may be free to serve the public most efficiently and economically.

SECOND: That the state governments, having the power to regulate production of crude oil and natural gas to prevent waste and so conserve a valuable natural resource, should be encouraged in that effort.

THIRD: That the Federal Government, having the power to deal with interstate and foreign commerce, and to authorize interstate compacts, should supplement the production control effort of the states:

By making permanent and rigidly enforcing the Connally Law (S. 1190) prohibiting shipment in interstate and foreign commerce of oil produced in violation of state laws;

By approving the interstate compact which has already been ratified by the legislatures of five of the principal oil producing states;

By directing the U. S. Bureau of Mines, a competent fact-finding agency, to ascertain the crude oil production necessary to meet the consumptive demand of the nation and to make its findings available to the interstate compact commission and the respective conservation authorities of the oil producing states;

By exercising control of imports to a proper ratio to domestic production for such a time as is necessary.

FOURTH: That as concerns marketing, the field of greatest competition, there is no reason to single out the oil industry for special federal intervention. That industrial pacts and agreements when voluntarily made by any industry for the purpose of eliminating unfair methods of competition should be permitted.

FIFTH: That any such economic straitjacket as is contained in S. 2445 or similar proposals for the enlargement of the N. I. R. A. would serve to increase the price of gasoline and demoralize the industry.

IN SUPPORT of the foregoing we point to the record of the oil industry during the last fifteen years as one of outstanding public service.

But for cheap gasoline many industries which have contributed substantially to American economic progress could not have enjoyed such remarkable development. Notable among these are automobile and tire manufacture and modern road building, with the related industries such as steel, textiles, plate glass, leather and numerous accessories.

The production, transportation, refining and distribution of petroleum and its products go hand in hand with the automotive industry. Important as it is that automobiles should meet all reasonable demands upon them, it is equally important that the car owner, wherever he may travel, should have access to a plentiful supply of gasoline and oil, of good quality and at reasonable prices.

DURING the last fifteen years the efficiency of American made automobiles has steadily increased while their price has as steadily declined. Today, the United States makes 75 per cent of all the automobiles in the world. During the same period the petroleum industry has supplied the car owner with gasoline and oil in ample quantities, of constantly improved quality and at steadily decreasing prices.

In 1920 the average selling price of gasoline exclusive of tax in fifty cities, representing all the states, was 29.7

OF THE UNITED STATES

cents per gallon; in 1934 the figure for the same cities was 13.6 cents—a drop of 54.2 per cent. A barrel of crude petroleum now yields about twice as many gallons of gasoline as it did fifteen years ago. No consumer of gasoline and oil can reasonably complain that he cannot readily procure a plentiful supply of each, of good quality, at reasonable prices. The average cost exclusive of tax of owning and operating a motor car today, mile for mile, is about one-fourth of what it was fifteen years ago.

The free play of economic conditions under which these two great industries have so well served the consumer has been substantially the same. In both there has always been keen, unrelenting competition; and this, in turn, has stimulated new discoveries and new methods, has led to the development of new markets and has constantly tended to improve quality and reduce prices.

BECAUSE it has grown so fast, the oil industry has constantly needed large amounts of new capital. Its investment increased from $6,350,000,000 in 1921 to $12,200,000,000 in 1932. During these twelve years $2.94 of new capital was put into the industry for every dollar that was earned, and the annual average earning of the oil industry on its investment was only 1.66 per cent. It is inconceivable that political management could operate a fast-growing and hazardous business on so close a margin as this.

In transportation, particularly, which is such an important factor in costs, the oil industry has devised and developed its own unique systems, giving incomparably cheap movement by pipelines, ocean tankers, and by barges on inland waterways.

Every resource of science and technology has been enlisted in the search for new supplies of oil in the earth. In fact, the chief offense imputed to the industry is that it has been all too successful in finding new pools.

WITH such a record it is apparent that the hands of the oil industry should not be tied by governmental bureaucracy. The issue between government and private responsibility for this vast industry should not be obscured by vague declarations that the petroleum industry has become affected with a public interest justifying governmental control just because conservation has come to be recognized as a responsibility of government.

The distinguishing characteristic of petroleum and natural gas is their liquid and fugacious nature. In other mining industries the situation is entirely different; for instance, the owner of coal land is not subject to drainage, for he can keep his coal if he likes and his neighbor cannot take it. But when a well is drilled into an oil producing area the "law of capture" permits the surface owner to draw the oil from his well even though it may drain the supply of the adjoining land owner. Therefore, the neighbor must drill and produce his share of the oil or lose it; and his neighbor in turn must do likewise. This was a situation beyond the power of the industry to remedy, and in all flush pools, before the conservation efforts of the states were effective, the "law of capture" resulted in unscientific and wasteful practices and overproduction. The oil producing states and the industry itself have now come to an intelligent conception of what real conservation means. The industry believes that true conservation means the scientific control of production making for greater recovery, as well as efficient and economic utilization of crude oil.

IT IS the duty of the oil producing states, in the public interest as well as in the interest of the industry, to prevent waste of crude oil and thereby conserve the supply. This duty is the obligation of government, and when that obligation shall have been discharged there is nothing in the inherent nature of petroleum or in the conduct of the business which requires or justifies the oil industry being declared a public utility any more than in the case of any other producer or manufacturer of a commodity of general use.

In marketing gasoline, the problems are no different from those in the wholesaling and retailing of other commodities. Whether there are too many filling stations; whether there is waste in the number of retail stores that market clothing, groceries, beverages or the like, is a problem that concerns our economic welfare as a whole and not particularly any one business. It is self-evident that the problems arising out of competition and the operation of economic laws in every hamlet in the country cannot be solved by a bureau at Washington which undertakes to regulate each minute detail of our vast and complicated business structure. There should be no economic tinkering, and no political control.

UNFORTUNATELY, governmental agencies, once organized and endowed with some measure of authority, aspire to continue their existence and increase their authority. Any proposal to amend the National Industrial Recovery Act with provisions that convert it from what is theoretically a system of governmentally supervised, industrially self-regulated codes of fair practice into a system of federal industrial dictatorship becomes a striking example of this tendency to encroach.

We have proceeded on the road to recovery sufficiently to consider methods of orderly development of business as a substitute for devices created in moments of national emergency and desperation. The time has come to consider the long range view of American economic progress.

The oil industry is prepared to do its part, and demonstrate its confidence in itself and in the future of the country, if it can but know clearly that its efforts are not to be checkmated by constant change, bureaucratic dictation or usurpation of power.

Congress has an unparalleled opportunity to aid recovery by a frank recognition of separate fields of federal and state responsibility under the Constitution.

Respectfully submitted, by order of its Board of Directors,

AMERICAN PETROLEUM INSTITUTE

AXTELL J. BYLES, *President*

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Time To Make a Choice

Sooner or later all America will be forced to make a decision, as the directors of the American Petroleum Institute were last week, between two irreconcilable trends.

Some day we will have to take a stand on whether we are to continue to drift into outright socialism or make one last desperate effort to regain our individual freedom.

The two are absolutely incompatible. They cannot be blended. Governmental control of business fails because, its advocates say, it needs more power. Each failure is the excuse for further seizure of authority, as demonstrated in the case of the oil industry. If all else fails "let us make a public utility out of it" and when that fails also complete government taking over of the entire business will be the final step.

As much has been plainly indicated by the threats to lockstep the whole business under a Federal bureau that will not only tell the individual how much oil he can produce, but how much gasoline he may make and what price he shall sell it for at the station pump.

When the business reaches that stage there will be no oil men left and no oil industry. There will be no incentive for the wildcatter to seek new pools or for the technologist to discover improved processes. The initiative and rivalry which has enabled the oil industry to keep pace with the demand of mounting millions of motorists for motor fuel and oil will not be stimulated by a dead-end job in a Federal bureau.

When the supply falls for lack of enterprise in discovering new reserves the consumer will have to be content with what he can get at whatever price the bureau says he must pay.

The hundreds of millions that oil men have sunk in dry holes and vain search for new pools have been at their own expense. Under government operation it would have to come out of the pockets of the taxpayers.

And why should we abandon private operation which has provided an unfailing supply on every highway throughout the land at a price ratio lower than that of all commodities combined for more than twenty years in good times and in bad, in war and in peace?

That the public has had no complaint about the cost of gasoline is shown by the fact that the State and Federal government have been able to add 43 cents on every dollar paid for motor fuel without provoking the voters to effective protest.

The general public in the past ten years has become tiresomely familiar with the excuse in almost every other business that "we are just out of it." In the pre-depression era the explanation was that manufacturers could not keep up with orders. During and since the depression it has been hand-to-mouth making and buying. But not in the case of gasoline or motor fuel.

No motorist is asked to come around next week for his supply. Neither in ever available supply or in cost has there been any popular demand for taking the oil business out of the capable hands of the men who operate it, and turn it over to a government bureau.

The sole basis for the agitation for government interference has been the industry's over-efficiency in finding and producing oil with resulting below cost competition that recoiled on the industry itself.

Ten years of persistent educative effort within the industry sold the vast majority of oil men on the necessity for cooperation in regulating production to demand. It also aroused the oil producing states to the need for the regulative authority.

Experience has convinced both the industry and the oil producing states that cooperation must be extended into an interstate compact for which the approval of Congress is necessary. This calls for no taking over of the business by the Federal government, no setting up of a Federal satrapy over the industry, no plunge down the road that can end only in complete socialism.

Oil men thinking it over and marking the trend are naturally alarmed at what the extension or expansion of the N.R.A. can do to the industry—and to the country. What has been threatened to be done to the oil industry must just as logically be applied eventually to all business.

Below cost competition due to overproduction, price cutting and chiseling are not confined to the oil business. There is the same complaint in every business but it is not yet proposed to put the government in control of all of them. That time will come, however, if the oil business is taken over, because bureaucracy grows on what it feeds on.

There can be no question that America must make a choice, between allowing regulation to be expanded into a control that leads inevitably to socialism, or standing fast for the rights of the individual citizen upon which American progress has been built.

Growing resentment over increasing official interference in everyday life is a wholesome sign of returning American independence. Even in Congress there are hopes that a Supreme court decision may light the way.

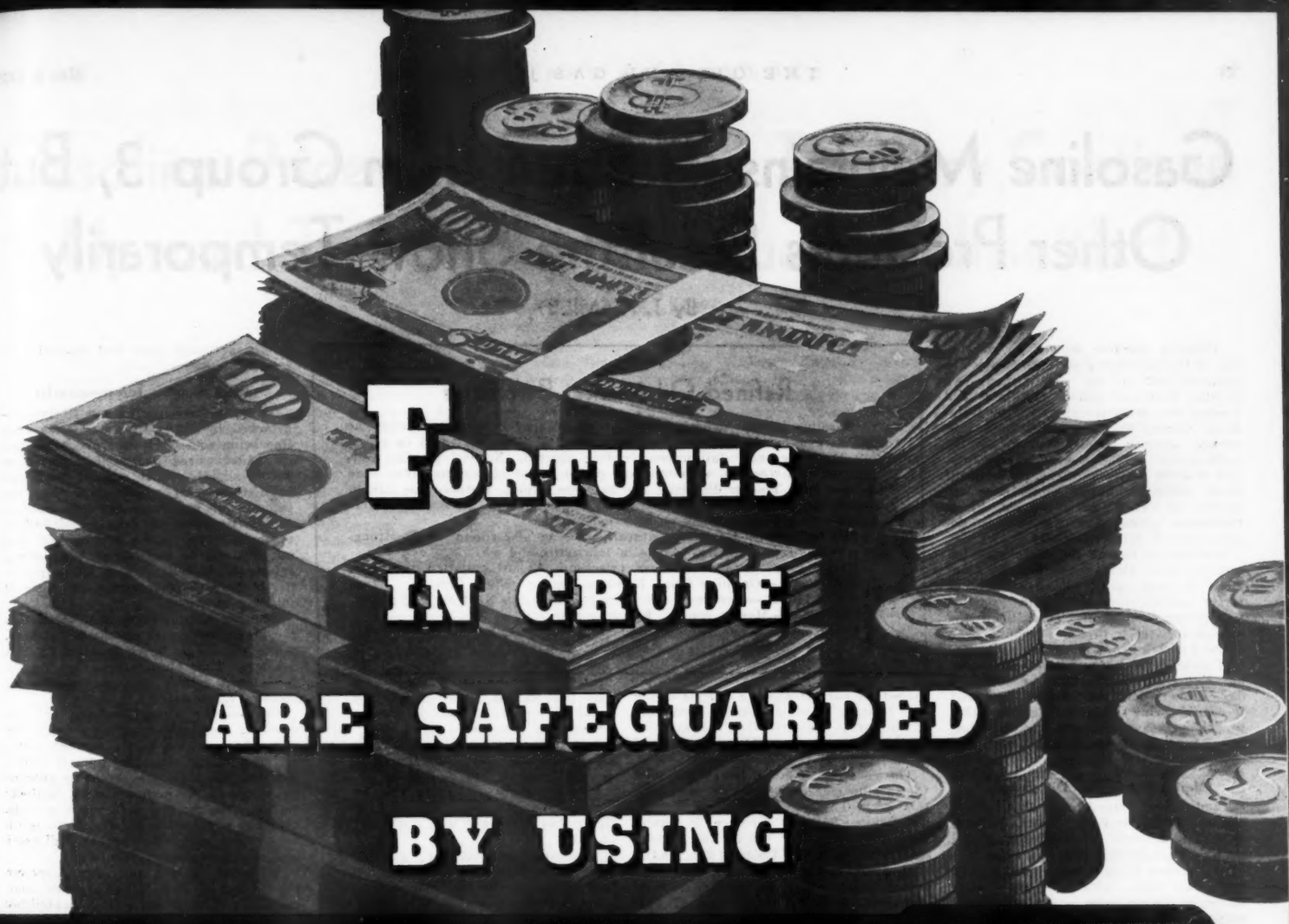
Assembling in special meeting at a crisis in the history of the industry and of the nation the directors of the American Petroleum Institute by a unanimous vote, for the first time in the record of the Institute except in routine matters, approved a petition to Congress to permit the industry to retain its self-government.

This action was forced by the conviction that unless the industry united in such a protest the oil business would be taken out of its control within less than two years.

That unanimous vote shows that, whatever sincere and honest differences of opinion may be held among individuals in the industry as to methods of regulation within the industry, they are in complete accord in opposition to federalization of business as contemplated in the Harrison bill for the extension of the N.R.A.

"Any proposal to amend the N.R.A. with provisions that convert it from what is theoretically a system of governmentally supervised, industrially self-regulated codes of fair practice into a system of Federal industrial dictatorship" should be recognized for what it means.

Business has been lulled into accepting successive encroachments upon individual liberty by the plea of emergency but the time has come to call a halt on the rapidly increasing trend towards plain unadulterated socialism which is concealed in the progressive nationalization of business and industry.



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Gasoline Maintains Its Strength in Group 3, But Other Products Steal the Show Temporarily

By T. F. SMILEY

Although gasoline showed no slackening of the underlying strength which has characterized it for more than two months, kerosene, tractor distillates and heating oils stole the show in the Oklahoma (Group 3) market this week. Abnormal weather conditions provided the explanation. In the case of tractor fuels and in large degree kerosene, agricultural needs which ordinarily would have appeared in April were delayed by a capricious spring, and the pent-up demand now is being released.

Inability to foresee the vagaries of the weather man, along with storage limitations in some cases, robbed refiners of larger participation in the unseasonable profits from furnace oils. Theoretically the season for these products should have ended a month ago. But, ignoring theories, cold weather and the need of heat kept on. Expecting the demand to fade any day, refiners sold their output for what it would bring without haggling. This was true of large refiners who had storage as well as of small ones who didn't have it.

Month Brings Big Differences

Tender board records show that in four weeks of April East Texas refiners shipped 332 cars of distillates of all grades. Much prime white went for 2⅝ cents. It was being snapped up at 3¼ cents this week, with a "Thank you" thrown in. In the same period East Texas refiners shipped 215 cars of kerosene at about 3⅜ cents f.o.b. refinery for the 41-43 grade, and glad to get it. They were getting 3¾ cents this week, and the buyer looking for a few cars had to do some shopping before landing them.

Oklahoma refiners were no better weather prognosticators than those of East Texas, and many of them are wishing they had held their heating oils and reaped the harvest which a delayed spring was to make possible. Reports from consuming areas indicated that the scramble for heating oils was really near an end at last.

The cheerful tone which has pervaded the gasoline market was clearly observable this week. There was no change in tank car prices, but the advance of three-tenths cent in tank wagon and service station prices in the Chicago area had a bracing effect. The opinion prevailed that higher pump prices in Oklahoma were imminent. A half-cent increase at any time now would occasion no surprise. In fact, with retail prices rising in contiguous marketing territories and with Group 3 tank car prices showing an advance of 1 cent in the last 60 days, it is felt higher pump prices not only are justified, but are needed to consolidate market gains. Refiners seemed in no hurry to see the next boost in tank car prices.

There is talk in the trade—not just idle popping off either—concerning the probability of an advance in crude prices before the summer is over. One sales manager in close touch with marketing conditions declared: "If the tank car price of gasoline goes to 5 cents in early June—and there is nothing wild in predictions that it will—I believe it wholly likely that there will be a crude advance in July."

General expressions of gratification were heard regarding the healthy condition of the motor fuel market as it is about to enter its season of heaviest consumption. One well informed observer remarked: "It has been a long time since the gasoline market approached the summer season under such satisfactory auspices. Time and again we have seen the market wrecked and reasonable returns go glimmering because certain selfish interests cared more about immediate profits than they did about the permanent wellbeing of the whole industry. It looks as though they had learned their lesson."

Price Shading Inconsequential

Exaggerated importance is likely to be attached to stories of East Texas gasoline being sold for northern consumption at shaded prices. Scattered shipments at prices slightly under current levels are open to several explanations. For one thing, there are many cases in which a strong friendship has been established between a refiner and a broker, and it is not difficult to understand why such a refiner might sell some of his output to his broker friend from time to time at minor concessions.

Another consideration is the fact that the broker pays cash on the barrel head, while the major buyer customarily gets 10 days. That circumstance has its appeal for a refiner who may need some money "right now."

Occasionally a small refiner, notwithstanding the certainty of his material being taken off his hands through inter-refinery buying, may find himself with a few cars which for one reason or another he wants to move immediately, without waiting even the few days which a major company might allow to pass. So he turns to a broker with whom he has had previous—and satisfactory—dealings.

When all is said and done, however, the volume of East Texas gasoline moving north at concessions from established prices is inconsequential.

Natural Gasoline Advancing

Natural gasoline was still soaring, quotations adding another eighth to those ruling a week ago. The explanation for the excellent action of the naturals is found largely in the simple fact refiners recognize that the spread between nat-

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Refined Oil Market Barometer

Gasoline is approaching its season of heaviest consumption with the market in a more wholesome condition than it has experienced in years. Both tank car and retail prices trending upward. Natural gasoline continues to gain strength, with tank car prices 1 cent higher than they were one year ago. Tractor distillates and kerosene strong. Furnace oils still in demand owing to belated spring. A.P.I. protest against government interference having bracing effect on refined markets.

Mid-Continent.—Gasoline, natural, kerosene and tractor fuels strong. Furnace oils scarce. Little change in lubricants and wax.

East Coast.—Gasoline stronger, prices up. Export situation uncertain.

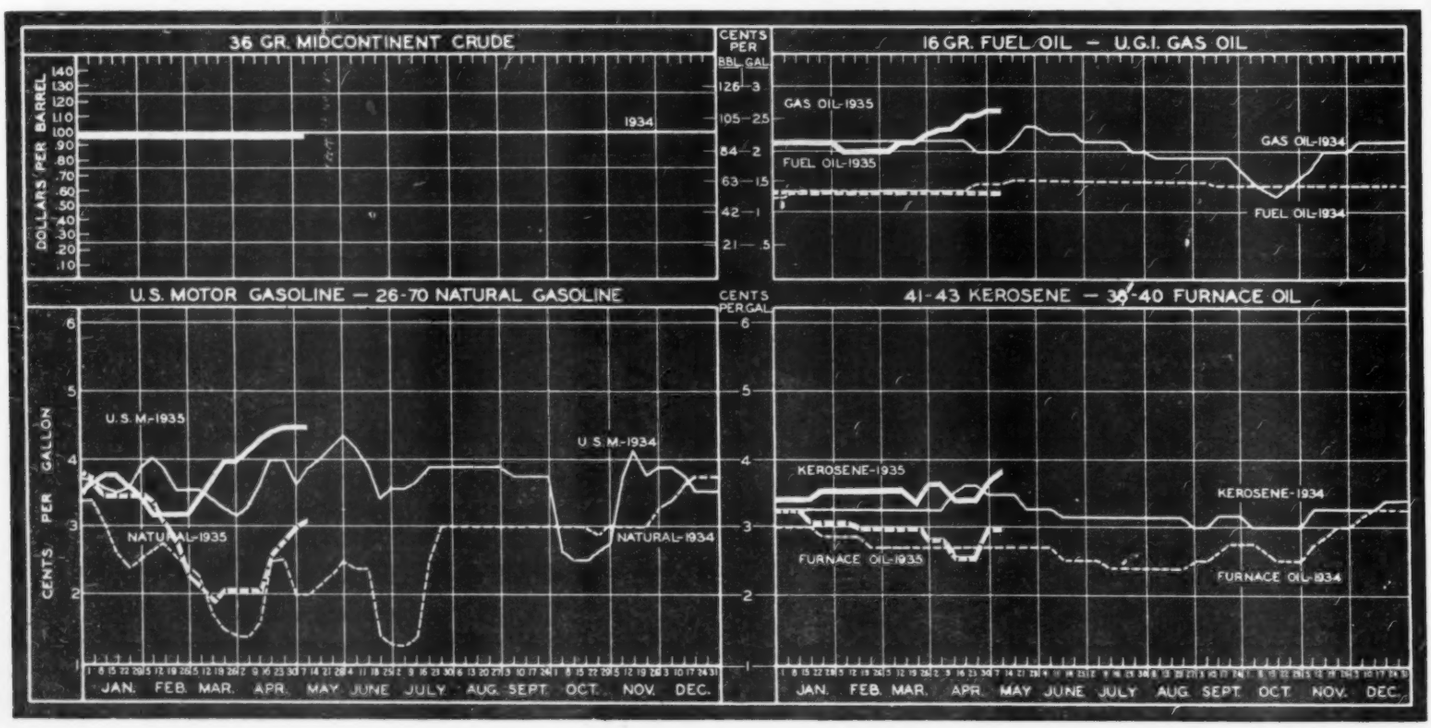
Gulf Coast.—Gasoline firm. Kerosene tighter. Fuels firm.

Pennsylvania.—Gasoline higher. Bright stocks up. Neutrals may follow.

California.—Market spotty. Kerosene firm.

Chicago.—Gasoline firm. Kerosene, tractor fuels, heating oils strong.

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



Gasoline Prices in the Eastern Territory Continue Upward Trend; Export Situation Unsettled

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, May 6.—Gasoline prices in this territory continued their upward trend today when major refiners and terminal operators advanced their tank car quotations on all grades one-fourth cent in New York Harbor and several other seaboard points. The new prices in New York Harbor are 5¾ cents for low octane, 6 cents for middle octane, 6¼ cents for 65 octane and above and 6½ cents for ethylized regular grades. In some cases small barge shipments are one-fourth cent less.

This advance in tank car prices was accompanied by a general increase of .2 cent per gallon in posted dealer and service station quotations in New York state and New England. This increase did not apply to some points in western New York where distributors are still having difficulty with price-cutters. Service station prices in that section were recently advanced so that they are in line with adjoining districts and they are being maintained by the major companies despite the fact that there are still some independent operators underselling the market at a few points from 1 to 3 cents per gallon.

The advances today were in line with recent predictions of many observers that the motor fuel market would continue the advances started last month. The tank car and service station quotations are still short of the levels which some sellers feel are necessary to place the refining and marketing divisions on a profitable basis. Due to that fact additional increases before the end of the month are predicted.

A summary of market conditions in regard to other products in this territory would be practically the same as last week. Some sellers feel that kerosene is showing signs of strength following the collapse of February and March. It is said that the dumping of excess kerosene on this market by Gulf or Eastern refiners has ended and this fact rather than any increase in demand accounts for the better tone of the market. The product in New York Harbor area is still available over a price range of 5 to 5¼ cents.

Furnace Oil Demand

Furnace oils (Nos. 2, 3 and 4 grades) are holding around the 4-cent level with quotations ranging up to 4¼ cents. The main concern in this market now is the determination of the basis for contracts for the season which starts next fall. Some business is being sought on the same basis as the season now closing but a majority of the larger distributors are not actively soliciting new contracts at this time, although agreeing that the basis probably will be about the same as this season. It is easier to get contracts from consumers if a flat price is offered. This was not possible last year under the code which required a maximum of 1 cent above the base price. It is said that if the sellers could be assured this code provision would be dropped with the expiration of the present NRA code next month, many of them would wait until that time before offering new contracts to their regular customers. On the other hand in tank car business there is pressure from jobbers who want to close tank car contracts with refiners so that they in turn can make agreements with household owners and larger consumers. The jobbers include an increasing number of concerns which are also engaged in the sale of oil burners. In soliciting new burner installations it is advantageous to them in closing the deals to be able to offer the prospect a contract covering his oil requirements after the unit is installed.

It is pointed out that this direct tie-in between burner and oil sales is bringing about a competitive condition in which the price of oil rather than the burner is the controlling factor in the sale of burners. This situation is further complicated by the fact that several oil companies are in the oil burner business. One refinery sales manager contends that this situation has tended to keep oil prices down over the past two seasons. He says the tendency of the oil companies to give concessions in burner sales to get furnace oil business and vice versa in the case of oil burner dealers, is injuring both industries from the standpoint of profits.

Export Situation

Those who are inclined to temper present optimism with caution are pointing to the foreign situation with special reference to export markets here, in endeavoring to gauge probable future market trends. Exporters in this country have lost valuable foreign outlets since the first of the year with no assurance that they will be able to regain them. This situation is shown in the case of the United Kingdom, one of the largest customers of refiners in this country, when imports from the United States for the first quarter of this year are compared with the same period in 1934. These imports into the United Kingdom from the United States for the first quarter of 1935 and 1934 were as follows (data in imperial gallons):

	1935	1934
Gasoline	19,871,000	38,504,000
Kerosene	4,446,000	26,705,000
Lubricating oil	10,344,000	14,645,000
Gas oil	8,401,000	17,204,000
Fuel oil	3,849,000	7,366,000

This shows a decrease of 50 per cent in imports of gasoline from the United States despite the fact that total imports were slightly greater the first quarter of this year. Imports of kerosene dropped more than 80 per cent with 30 to 50 per cent losses in other products. The situation in the case of imports into France are somewhat similar so far as the United States is concerned and this country has lost outlets in other European markets.

Iraq Crude Supply

The adjustments in European markets which have been necessary due to the advent of Iraq crude oil are generally offered in explanation of this loss in export outlets so far this year. Incidentally petroleum producing countries other than the United States have lost outlets due to this Iraq production which is now being made available for refining at the rate of 85,000 to 90,000 bbls. daily.

It was hoped that the increasing demand for petroleum products in European and adjoining markets would soon absorb this increased supply and normal operations of other countries could be resumed so far as Iraq was concerned. At this time, however, the situation is confused and developments have not been favorable to this country. South American outlets have suffered and it is assumed that major factors there will make every effort to regain in other markets what they have lost in France and the United Kingdom. The same situation applies to Rumania and to a lesser extent Russia. These conditions do not point to higher prices for petroleum products outside the United States and it is equally apparent that this will have a bearing on the domestic situation in this country. Unlike some countries which have used outside markets for a dumping ground at low prices there has always been a close relationship between export and domestic prices for petroleum products in this country.

Iraq Crude a Problem

According to those in close touch with European markets, it will probably be several months before it can be determined just what the full significance of Iraq crude supply will mean. In the meanwhile it is restricting outlets of other countries with the United States so far taking the greatest losses both in the form of crude oil sales and demand for refinery products. Important Rumanian oil interests have asked for a world conference to see if this situation with its obvious threat to prices cannot be ironed out to the satisfaction of everyone concerned. So far as known the suggestion has not been acted upon favorably by the major oil interests of other countries.

This situation as a market factor in this country has been minimized by some who point to the taxes on petroleum products imported into this country as a protection. This tax amounts to only a half cent per gallon in the case of crude oil which is not sufficient to prevent dumping on this market should outside supplies become excessive. As previously explained the danger for the immediate future is not in dumping excess foreign crude or refinery products on the domestic market, but in the further restriction of export outlets.

Prices

There were no important changes in gasoline at the Gulf or along the Atlantic Seaboard for domestic or export movement. For coastwise shipment, middle octane U. S. Motor gasoline was quoted at 5¼ cents and 65 octane at 5½ cents basis the Gulf. An export car-

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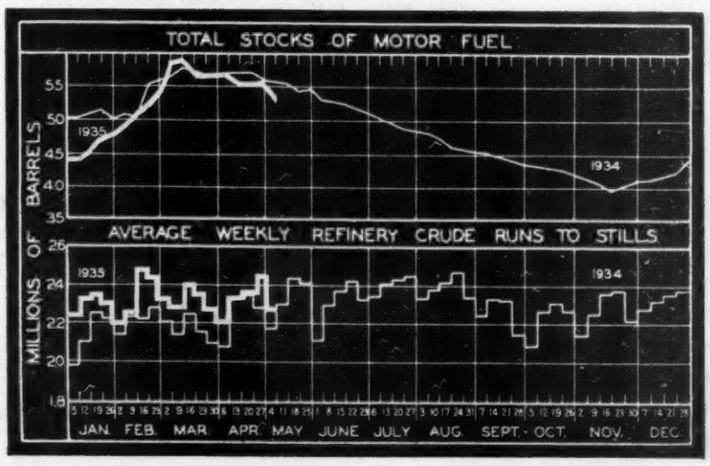
American Petroleum Institute Weekly Refinery Statistics

Week Ending May 4, 1935

	Capacity reporting per cent	Daily crude runs (bbls.)	Finished motor fuel (bbls.)	Gas oil and fuel oil (bbls.)
East Coast	100.0	414,000	16,265,000	9,134,000
Appalachian	94.8	86,000	2,076,000	707,000
Indiana, Illinois, Kentucky	95.9	320,000	9,379,000	4,186,000
Oklahoma, Kansas, Missouri	84.8	235,000	5,473,000	3,953,000
Inland Texas	48.5	83,000	1,398,000	1,760,000
Texas Gulf	96.4	494,000	6,104,000	8,955,000
Louisiana Gulf	96.4	118,000	1,272,000	3,101,000
North Louisiana and Arkansas	90.0	41,000	274,000	313,000
Rocky Mountain	61.9	42,000	1,024,000	767,000
California	92.6	434,000	9,757,000	63,802,000
Total United States	89.5	2,267,000	53,022,000	76,678,000



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasolines

	May 7		Apr. 30	
OKLAHOMA (Group 3)—				
U. S. Motor grades:				
Below 63 octane	.04½	.04⅝	.04½	.04⅝
63-70 octane	.05¼	.05⅜	.05¼	.05⅜
60-62 400 grade:				
Below 63 octane	.04½	.04⅝	.04½	.04⅝
63-70 octane	.05¼	.05⅜	.05¼	.05⅜
64-66 375	.04⅝	.04¾	.04⅝	.04¾
68-70 360	.04¾	.04⅞	.04¾	.04⅞
NORTH TEXAS—				
U. S. Motor grades:				
Below 63 octane	.04½	.04⅝	.04½	.04⅝
63-70 octane	.05¼	.05⅜	.05¼	.05⅜
60-62 400	.04½	.04⅝	.04½	.04⅝
64-66 375	.04⅝	.04¾	.04⅝	.04¾
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.05		.05	
63-70 octane	.05¾		.05¾	
60-62 400	.05		.05	
ARKANSAS (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.05		.05	
63-70 octane	.05¾		.05¾	
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 63 octane	.04½	.04¾	.04½	.04⅝
63-70 octane	.05¼	.05½	.05¼	.05⅝
60-62 400	.04½	.04¾	.04½	.04⅝
64-66 375	.04⅝	.04¾	.04⅝	.04¾
68-70 360	.04¾	.04⅞	.04¾	.04⅞
Aviation fighting grade	.05½	.05¾	.05½	.05⅝
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.05⅝	.05½	.05¼	.05⅜
60-64.9	.06⅝	.06¾	.06½	.06⅝
65-70 octane	.06⅞	.07	.06⅞	.07
68-70 350	.06¼		.06¼	
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.07	.08	.07	.08
58-60 400	.08	.09	.08	.09
EAST COAST—				
U. S. Motor, below 60 octane:				
*New York (Bayonne)	.05¾		.05½	
Baltimore	.05¾		.05½	.05¾
U. S. Motor, 60-64.9 octane:				
*New York (Bayonne)	.06		.05¾	
Philadelphia	.06	.06¼	.05¾	.06
Boston	.06		.05¾	
Baltimore	.06	.06¼	.05¾	
Charleston, S. C.	.06		.05¾	
U. S. Motor, 65 and above:				
*New York (Bayonne)	.06¼		.06	
Philadelphia	.06¼		.06	.06¼
Boston	.06¼		.06	.06¼
Baltimore	.06¼		.06	.06¼
Charleston, S. C.	.06¼		.06	.06¼

*All grades of gasoline one-fourth cent less for small barge shipments.

GULF COAST (domestic)—				
U. S. Motor:				
Below 60 octane	.05¼		.05¼	
60-64.9 octane	.05¼	.05½	.05¼	.05½
65 octane and higher	.05½		.05½	

Naphthas

	May 7		Apr. 30	
PENNSYLVANIA (inland refineries)—				
50-52 (blending)	.05¼	.05⅜	.05⅜	.05¼
52-54 450 (blending)	.05¼	.05⅜	.05⅜	.05¼
54-56 450 (blending)	.05¼	.05⅜	.05⅜	.05¼
50-52 450 (blending)	.05¼	.05⅜	.05⅜	.05¼
CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.04½	.04¾	.04½	.04¾
Cleaners' naphtha, 56-58 gr., 200 i.b.p., 320 e.p.	.06¾	.07	.06¾	.07
Lacquer diluent, 180 i.b.p., 250 e.p.	.07¾	.08	.07¾	.08
Lacquer diluent, 140 i.b.p., 200 e.p.	.08¾	.09	.08¾	.09
Rubber solvent, 68-70 gr., 100 i.b.p., 300 e.p.	.06¾	.07	.06¾	.07
Stoddard solvent, 300 i.b.p., 410 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
Pet. thinner, 290-300 i.b.p., 410 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p., 330 e.p.	.06¾	.07	.06¾	.07
Petroleum spirits	.05¾	.06	.05¾	.06

Natural Gasolines

	May 7		Apr. 30	
OKLAHOMA (Group 3)—				
Grade 26-70	.03⅛		.03	
Grade 18-55	.03⅞	.04	.03¾	.04
Low vapor pressure grades:				
14 lb. v.p. (max.)	.04⅜	.04½	.04¼	.04⅜
12 lb. v.p. (max.)	.04⅜		.04¾	
NORTH TEXAS—				
Grade 26-70	.02¾	.03	.02¾	.03
Grade 18-55	.03¾	.03⅞	.03⅝	.03¾
Low vapor pressure grades:				
*14 lb. v.p. (max.)	.04¼	.04⅜	.04⅛	.04⅜
*12 lb. v.p. (max.)	.04⅝		.04⅝	

*Nominal.

NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
Grade 26-70	.03¼		.03¼	
CALIFORNIA—				
75-85 375	.05	.06	.05	.06

Kerosenes

(All kerosenes water white)

	May 7		Apr. 30	
OKLAHOMA (Group 3)—				
41-43	.03⅞	.04	.03¾	.03⅞
42-44	.04	.04⅛	.03¾	.03⅞
NORTH TEXAS—				
40-41	.03⅝	.03¾	.03½	.03⅝
41-43	.03⅞	.04	.03⅝	.03¾
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
41-43	.03¾	.03⅞	.03¾	.03⅞
ARKANSAS (Ark., N. La. & Miss. del.)—				
41-43	.03⅞		.03⅞	
PENNSYLVANIA (inland refineries)—				
45	.04¾		.04¾	
46	.04⅞		.04⅞	
47	.05		.05	
CHICAGO (based on Oklahoma Group 3)—				
41-43	.04	.04⅛	.03⅝	.03¾
42-44	.04⅛	.04¼	.03¾	.03⅞
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04½	.05	.04½	.05
NEW YORK (Bayonne, N. J.)—				
41-43	.05	.05¼	.05	.05¼
GULF COAST (domestic)—				
41-43	.04	.04¼	.04	.04¼

Petroleum Coke

(Prices per ton f.o.b. refineries in Chicago area)
(Refineries will absorb freight to 80 cents a ton)

	May 7	Apr. 30
Pile run	5.75	6.00
Direct from still	6.75	7.00
Egg, nut, pea	8.00	8.50
Lump	8.00	8.50

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

	May 7		Apr. 30	
OKLAHOMA (Group 3)—				
32-36 straw	.02⅝	.02¾	.02⅝	.02¾
36-38 straw	.02¾	.02⅞	.02¾	.02⅞
38-40 straw	.03⅛	.03¼	.03	.03⅛
38-40 prime white	.03¼	.03⅜	.03⅛	.03⅜
NORTH TEXAS—				
38-40 straw	.03⅛	.03¼	.03⅛	.03¼
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
36-40 furnace oil	.02¾	.02⅞	.02¾	.02⅞
ARKANSAS (Ark., N. La. & Miss. del.)—				
32-36 furnace oil	.02¾	.02⅞	.02¾	.02⅞
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.03	.03⅛	.02⅞	.03
38-40 straw	.03¼	.03⅜	.02⅞	.03⅛
38-40 prime white	.03⅜	.03½	.03⅛	.03¼
NEW YORK (Bayonne, N. J.)—				
No. 1	.05	.05¼	.05	.05¼
No. 2	.04	.04¼	.04	.04¼
No. 4	.04	.04¼	.04	.04¼

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gal., Diesel and fuel oils per bbl.)

	May 7		Apr. 30	
OKLAHOMA (Group 3)—				
32-36 gas oil, cracking stock	.02⅝	.02¾	.02⅝	.02¾
U.G.I. gas oil	.02⅝	.02¾	.02⅝	.02¾
32-36, zero to 15 gas oil	.02⅝	.02¾	.02⅝	.02¾
28-30, No. 3 burner oil	1.02½	1.07½	1.02½	1.07½
26-30, zero to 10 fuel oil	.92½	.97½	.92½	.97½
24-26 fuel oil	.75	.77½	.75	.77½
20-22 fuel oil	.70	.75	.70	.75
Below 16 fuel oil	.60	.62½	.60	.62½
NORTH TEXAS—				
32-36 gas oil, industrial	.02½	.02⅝	.02½	.02⅝
22-26 fuel oil	.65	.67½	.65	.67½
Below 20 fuel oil	.60	.62½	.60	.62½
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02¾	.02⅞	.02¾	.02⅞
14-16 fuel oil	.70	.75	.70	.75
ARKANSAS (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02¾	.02⅞	.02¾	.02⅞
32-36 gas oil	.02¾	.02⅞	.02¾	.02⅞
14-16 fuel oil	.65	.70	.65	.70
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.02½	.02⅝	.02½	.02⅝
28-30 zero to 10, fuel oil	1.05	1.10	1.05	1.10
26-28 zero to 10, fuel oil	.95	.100	.95	1.00
22-26 zero to 10, fuel oil	.82½	.87½	.82½	.87½
18-22 zero to 10, fuel oil	.67½	.70	.67½	.70
Below 18 fuel oil	.57½	.60	.57½	.60

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel in all these areas.

PENNSYLVANIA (inland refineries)—				
30-40	.04		.04	
CALIFORNIA—				
Los Angeles:				
30-34 gas oil, per bbl.	1.15	1.25	1.15	1.25
27 plus Diesel	1.15	1.25	1.15	1.25
27 plus Diesel (bunkers)	1.25	1.30	1.25	1.30
12-16 (bunkers at tidewater)	.85	.95	.85	.95
10-16 (cargo lots)	.75	.80	.75	.80
12-17 (tank cars)	.65	.85	.65	.85
San Joaquin Valley:				
10-18 (tank cars)	.60	.75	.60	.75
San Francisco:				
27 plus Diesel, per bbl.	1.25		1.25	
27 plus Diesel (bunkers)	1.35		1.35	
10-16 (bunkers)	1.00		1.00	
GULF COAST—				
28-30 gas oil	.03½	.03⅝	.03½	.03⅝
28-30 Diesel (bunkers)	1.70		1.70	
Bunker C (bulk cargoes)	.85	.90	.85	.90
Bunker C (bunkers)	.95	1.00	.95	1.00
NEW YORK (Bayonne, N. J.)—				
27 plus, gas oil	.04	.04¼	.04	.04¼
28-30 Diesel (lighterage 6½ cents per bbl.)	1.89		1.89	
28-30 Diesel (tank cars)	.04¼		.04¼	
*Bunker C (to ocean-going ships in N. Y. harbor)	1.15		1.15	
Industrial fuel (tank cars)	.03¾	.04	.03¾	.04

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

	May 7		Apr. 30	
OKLAHOMA (Group 3)—				
Zero to 10 Cold Test:				
150-3	.10		.10	
180-3	.11¼		.11¼	
180-4	.10¾		.10¾	
200-3	.11¾		.11¾	
200-4	.11¼		.11¼	
240-3	.13¾		.13¾	
240-4	.13¼		.13¼	
280-3	.14¾		.14¾	
280-4	.14		.14	
300-3½	.15¼		.15¼	
400-4	.17¼		.17¼	
100-2 paraffin oil	.05¾		.05¾	
15-20 Cold Test:				
200-3	.10¾		.10¾	
200-4	.10¼		.10¼	
240-3	.12¾		.12¾	
240-4	.12¼		.12¼	
280-3	.13¾		.13¾	
280-4	.13		.13	
GULF COAST—				
Pale Oils:				
200-3	.07	.07½	.07	.07½
300-3	.07½	.08	.07½	.08
500-3½	.08½	.09	.08½	.09
750-3½	.09	.09¼	.09	.09¼
1,200-3½	.09½	.09¾	.09½	.09¾
2,000-4	.09¾	.10	.09¾	.10
Red Oil:				
200-5-6	.07	.07¼	.07	.07¼
300-5-6	.07¼	.07½	.07¼	.07½
500-5-6	.08	.08½	.08	.08½
750	.08½	.09	.08½	.09
1,200-5-6	.09¼	.09½	.09¼	.09½
CALIFORNIA (moving to domestic market)—				
Pale Oils:				
100-2½-3	.07½	.07¾	.07½	.07¾
200-2½-3	.08	.08¾	.08	.08¾
300-3-3½	.09	.10	.09	.10
350-3-4	.10½	.11	.10½	.11
400-3-4	.12	.12¼	.12	.12¼
450-3-4	.12½	.12¾	.12½	.12¾
550-3-4	.13	.13½	.13	.13½
600-3-4	.13½	.14	.13½	.14
Red Oils:				
200-4-5	.08½	.09	.08½	.09
300-5-6	.09		.09	
350-5-6	.10	.10¼	.10	.10¼

400-5-6	.10½	.10¾	.10½	.10¾
450-5-6	.11	.11¼	.11	.11¼
500-5-6	.11½	.11¾	.11½	.11¾
600-5-6½	.12	.12¾	.12	.12¾
700-6½ plus	.13	.13¼	.13	.13¼
750-6½ plus	.13½	.13¾	.13½	.13¾
900-6½ plus	.14	.14½	.14	.14½
PENNSYLVANIA—				
150 vis. at 70° F., 3 color, 400-405 flash:				
Zero pour test	.20½	.21	.20½	.21
10 pour test	.19½	.20	.19½	.20
15 pour test	.19	.19½	.19	.19½
25 pour test	.18	.18½	.18	.18½
180 vis. at 70° F., 3 color:				
25 pour test	.21	.21½	.21	.21½
200 vis. at 70° F., 3 color:				
Zero pour test	.25½	.26	.25½	.26
10 pour test	.24½	.25	.24½	.25
15 pour test	.24	.24½	.24	.24½
25 pour test	.23	.23½	.23	.23½

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	May 7		Apr. 30	
Bright Stocks:				
190-200 D	.17		.17	
150-160 D, 0-10	.14		.14	
150-160 D, 10-25	.13½		.13½	
150-160 25-40	.13		.13	
150-160 E	.13		.13	
Steam refined:				
630 light green (treated)	.07½	.08	.07½	.08
600 light green (untreated)	.06	.08	.06	.08
600 dark green (untreated)	.04½	.07	.04½	.07
PENNSYLVANIA—				
Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 210; 540-550 flash):				
10 pour test	.19	.19½	.18½	.19
15 pour test	.18	.18½	.17½	.18
20 pour test	.17	.17½	.16½	.17
25 pour test	.16	.16½	.15½	.16
Steam refined:				
600	.07½	.08	.07½	.08
650	.10	.10½	.10	.10½
600 Pennsylvania flash	.11	.11½	.11	.11½
630 flash	.16	.16½	.16	.16½
600 Warren E filtered	.12	.12½	.12	.12½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	May 7		Apr. 30	
124-126 white crude scale	.02	.02¼	.02	.02¼
PENNSYLVANIA (inland refineries)—				
122-124	.0210	.0215	.0210	.0215
124-126	.0215	.0220	.0215	.0220
NEW YORK—				
Wax (a.m.p.) in bags fully refined:				
Refined grades:				
123-125	.0380		.0380	
125-127	.0400		.0400	
128-130	.0425		.0425	
130-132	.0440		.0440	
133-135	.0500		.0500	
135-137	.0525		.0525	
Crude scale:				
124-126 w.s.	.0200	.0225	.0200	.0225
124-126 y.s.	.02	.0215	.02	.0215
Petroleum in barrels in carload lots:				
Dark green	.01⅞		.01⅞	
Amber	.02⅞	.03	.02⅞	.03
Extra amber	.03	.03⅛	.03	.03⅛
Lily white	.06⅝	.06¾	.06⅝	.06¾
Snow white	.07¾	.07⅞	.07¾	.07⅞
Cream	.05⅝	.05¾	.05⅝	.05¾
CHICAGO (f.o.b. switching district)*—				
122-124 wax	.0440	.0450	.0440	.0450
125-127 wax	.0465	.0475	.0465	.0475
127-129 wax	.0480	.0490	.0480	.0490
130-132 wax	.0540	.0550	.0540	.0550
132-134 wax	.0565	.0575	.0565	.0575

*Cents per pound on carload lots in burlap bags of 225 lbs. approx. Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	May 7		Apr. 30	
U. S. Motor	.04½	.04⅝	.04½	.04⅝
60-62 400	.04⅝	.04¾	.04⅝	.04¾
61-63 390	.04⅞		.04¾	
64-66 375	.05		.04⅞	.05
LOS ANGELES:				
U. S. Motor grades:				
53-55 octane	.04		.04	
55-65 octane	.04	.04¼	.04	.04¼
65-67 octane	.04¼	.04½	.04¼	.04½
67-69 octane	.04½	.04¾	.04½	.04¾
Above 69 octane	.04¾	.05	.04¾	.05
58-60 400 endpoint	.04½	.05	.04½	.05

KEROSENE

GULF COAST—				
41-43 prime white	.03⅞	.04	.03⅞	.04
41-43 water white	.04	.04¼	.04	.04¼
44 water white	.04¼		.04¼	
LOS ANGELES:				
41-43 water white	.04½	.05	.04½	.05

LUBRICANTS

NEW YORK (f.a.s. in bbls.)—				
Cylinder Stocks:				
600 Warren E	.18½	.19	.18½	.19
600 S.R. unfiltered	.14	.14½	.14	.14½
650 S.R. unfiltered	.15½	.16	.15½	.16
600 flash S.R.	.16½	.17	.16½	.17
630 flash S.R.	.20½	.21	.20½	.21
Bright Stocks:				
8 color	.21	.22	.21	.22
6½ plus colors in dilution	.20	.21	.20	.21

NEUTRAL OILS

200-3 color	.28		.28	
150-3 color	.23		.23	

PARAFFIN WAX (Fully Refined)

NEW YORK (prices per pound):				
123-125 a.m.p.	.03625		.03625	
125-127 a.m.p.	.0375		.0375	
128-130 a.m.p.	.0400		.0400	
130-132 a.m.p.	.0425	.0450	.0425	.0450
133-135 a.m.p.	.0475		.0475	
135-137 a.m.p.	.05		.05	
Crude scale:				
124-126 w.s.	.0200	.0215	.0200	.0215
124-126 y.s.	.02	.0205	.02	.0205

Crude Oil Gravity Table

Gravity—	Oklahoma and Kansas (1)	North Texas, Central Texas and East Central Texas (2)	North Louisiana and Arkansas (3)	Gray County, Texas (4)	Carson, Hutchinson and Moore Counties, Texas (5)	Conroe, Texas (6)	Salt Creek, Wyo. (7)	Gulf Coast, Texas and Louisiana (8)	Gulf Coast, Texas and Louisiana (9)	Cotton Valley, Louisiana (10)
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	1.02

Effective December 3, 1934, Panhandle Refining Co., purchasing oil in North Texas, posted below 29 degrees, 68 cents; 29-29.9 degrees, 70 cents, with 2 cents added for each additional degree up to 40 and over, at 92 cents.

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedule: Below 25°, 76 cents; 25-25.9°, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08; Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedules at below 29°, 84 cents, excepting Phiitex Oil Co., which begins with below 31° at 88 cents.

Column 1—Effective September 29, 1933, Texas Co. of Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Phiitex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; October 1, by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective January 14, 1935, in the Van Pool, Van Zandt County, Pure Oil Co. posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03.

Column 3—Effective September 29, 1933, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. Effective March 17, 1934, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co. Starting with below 25°, 71 cents, adding 2 cents for each degree upward to 40 and over at $1.03.

Column 4—Effective September 29, 1933, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day, Phiitex Oil Co. posted below 31°, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 5—Effective September 29, 1933, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Phiitex Oil Co. posted below 31°, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 6—Effective September 29, 1933, by Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30 by Texas Co., which on September 29 had posted a schedule of $1.07 to $1.12 with a 1-cent spread on each degree.

Column 7—Effective September 29, 1933, by Stanolind Oil & Gas Co.

Column 8—Effective September 29, 1933, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana, 20-20.9°, 84 cents, with 2 cents added for each degree upward to 34 and over at $1.12; and in Cameron Meadows and Iowa, Louisiana, below 29°, 72 cents, with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 29°, 76 cents, with 2 cents added for each degree upward to 34° and over at $1; and in Black Bayou and White Castle, Louisiana: Below 29°, 80 cents, with 2 cents added for each degree upward to 34° and over at $1.10.

Column 9—Effective September 30, 1933, Texas Co. (On September 29 Texas Co. has posted a schedule of 2 cents on each degree, but changed it on September 30.)

Column 10—Effective September 29, 1933, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 69)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas	$1.00
Corsicana (heavy) (June 17, 1933)*	.80
Other fields	(See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Sanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., Empire Oil & Refining Co., and Atlas Pipe Line Co. posted 60 cents per barrel in East Texas, but on November 3 resumed its posted price of $1 per barrel, making it retroactive to October 23.

*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933)	$.70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933)	.78
Pecos County, Yates shallow Pool (Sept. 29, 1933)*	.88
Jones and Fisher Counties*. See gravity table	

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.

*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers.

	(See gravity table)
Tomball (see note)*	$1.15
Livingston (Sept. 29, 1933)†	1.00
Cleveland (Jan. 11, 1934)	1.00
Greta (Sept. 29, 1933)	.85
Refugio, light	(See gravity table)
Refugio, heavy (Sept. 29, 1933)‡	.85
Markham and High Island	(See Gulf Coast gravity table)
Conroe	(See Conroe gravity table)
Bosco, La. (Jan. 18, 1935)§	$.90

Note—Tomball, effective September 29, by Humble Oil & Refining Co. and October 3 by Magnolia Petroleum Co., and November 10 by Stanolind Crude Oil Purchasing Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy by Humble Oil & Refining Co. Cleveland (Liberty County) posted by Magnolia Petroleum Co. §Bosco posted by Pure Oil Co.

South Central and Southwest Texas

(See note below table)

Darst Creek	$.87
Mirando	.80
Luling (Sept. 29, 1933)	.75
Pettus	1.05
Salt Flat	.87
Lytton Springs (Sept. 29, 1933)	.95
Duval County (Sept. 29, 1933)	.80
Saxet	.85

Note—Effective on September 29 by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by

(Continued on Page 69)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

May 7, 1935

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon or 3 cents a gallon off retail prices is permitted for purchases running between 4,000 and 10,000 gallons a month, or 4 cents a gallon off retail prices for purchase in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	18.0	20.0	5.0	11.0
Pueblo	17 0	19 0	5 0	13 0
Grand Junction	20 5	22 5	5.0	15.0
Casper, Wyo.	18 5	20.5	5.0	11 5
Cheyenne	18 5	20.5	5.0	13.0
Butte, Mont.	21 0	23 0	5 0	17 5
Billings	22.0	24.0	6.0	16 5
Helena	23 0	25.0	6.0	17.5
Great Falls	19.5	21.5	6.0	17.5
Salt Lake, Utah	21 0	23 0	5 0	16 0
Boise, Idaho	22.5	24.5	6.0	18.0
Twin Falls	22.5	24.5	6 0	18 0
Albu'que, N. M.	20.0	22.0	*6.5	13 0

*One-half cent city tax.

Effective March 1, 1934, discount to dealers with or without contract throughout Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 3½ cents.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago	15 2	17 2	4.0	9 0
Decatur, Ill.	15 2	17.2	4 0	9.5
E. St. Louis	14.8	16.8	4 0	9 1
Joliet	15.2	17.2	4 0	9 5
Peoria	14 3	15 2	4 0	9.5
Quincy	15 0	17.0	4 0	9 3
Davenport, Ia.	15 1	17.1	4.0	9 5
Des Moines	15.0	17.0	4.0	9.3
Mason City	15 4	17 4	4 0	9 7
Sioux City	15.2	17 2	4 0	9.5
Duluth, Minn.	16 0	18 0	4.0	10.3
Mankato	15 6	17 6	4 0	9 9
Minneapolis	15 6	17.6	4 0	9 9
LaCrosse, Wis.	16.6	18.6	5 0	9 9
Green Bay	16.9	18 9	5 0	10 2
Milwaukee	16 5	18.5	5.0	9 8
Madison	16 6	18.6	5 0	9 9
Detroit, Mich.	16 7	18.7	4.0	9.1
Grand Rapids	16 6	18.6	4.0	10.3
Saginaw	16 8	18.8	4.0	10.5
Evansville, Ind.	16 9	18 4	5.0	10 0
Indianapolis	17 1	19 1	5 0	10.2
South Bend	17 3	19.3	5.0	8.0
Fargo, N. Dak.	16 6	18.6	4 0	10 9
Huron, S. Dak.	17.1	19 1	5 0	10.4
Sioux Falls	16 5	18 5	5 0	9.8
Kans. Ci., Mo.*	14.5	16 5	4.0	7 6
Springfield	14 2	16.2	4 0	8.5
St. Louis	14.9	16.9	3 5	7 6
St. Joseph*	14 6	16 6	4 0	8 9
Wichita, Kans.	14.1	16.1	4.0	6 0
Bartlesville, Ok.	16.0	18 0	5 0	8 5

*State tax 2 cents, 1-cent city tax and 1-cent federal tax.

Discounts to dealers: Undivided accounts, 1¼ cents on premium and regular and 2½ cents on third grade off service station prices; divided accounts one-half cent less than undivided. Where prices are more than 1 cent below normal, the discounts are one-half cent less than above.

Stanolax Furnace Oil in Chicago

Effective Feb. 16, 1935, f.o.b. Chicago tank wagon prices: Range oil, less than 80 gallons, 8½ cents; 80-149 gallons, 7½ cents; 150 gallons and more, 7 cents. No. 1 (36-40 lt. stw. zero), less than 100 gallons, 8½ cents; 100-149 gallons, 7½ cents; 150 gallons or more, 7 cents; No. 2 (30-34, stw. zero), less than 150 gallons, 8 cents; No. 3 (32-36, zero), less than 150 gallons, 7 cents; No. 4 (12-16 zero), less than 400 gallons, 7 cents; viscosity of No. 4, 85 and 100° F.; No. 5, less than 400 gallons, 8¾ cents. For deliveries of more than stated quantities of Nos. 2, 3, 4 and 5, deduct 1 cent.

(Note: Range oil not quoted by Standard; quotation on this product by Burning Oil Distributors Association.)

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	18.0	20.0	7.0	12.0
Augusta	19.5	21.0	7.0	13.0
Macon	20.0	22.0	7.0	13.0
Savannah	18.5	20.5	7.0	14.0
Birm'ham, Ala.	21.0	23.0	8.0	10.0
Mobile	20.0	22.0	8.0	11.0
Montgomery	22 0	24.0	8.0	15.5
Jackson, Miss.	19 0	21.0	7.0	11.0
Vicksburg	19 0	21.0	7.0	14.5
Jack'ville, Fla.	18.5	20.5	8.0	11.5
Miami	18 5	20 5	8.0	13.5
Pensacola	20.0	22.0	8.0	11.5
Tampa	18.5	20.5	8.0	12.5
Lexington, Ky.	19.0	21 0	6.0	12.5
Covington	17.5	19.0	6 0	12.5
Louisville	18 0	20 0	6 0	10.0
Paducah	18.0	20 0	6.0	8.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline; in Florida an inspection fee of one-eighth cent on kerosene and gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	14.0	16.0	5.0	8.0
Fort Worth	14 0	16.0	5.0	8 0
Houston	15 0	17 0	5.0	8.0
San Antonio	15.0	17.0	6.0	8.0
El Paso	17.0	19.0	5.0	10.0
Muskogee, Ok.	16.0	18.0	5 0	6.0
Okla. City	16.0	18.0	5 0	8 0
Tulsa	16.0	18.0	5 0	8 0
Ft. Smith, Ark.	14.5	18.0	5.0	8.0
Little Rock	17.0	20.5	7.5	8.0
Texarkana	15.5	17.5	5.0	7.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	13.7	17.2	4 0	9.0
Newark	13 0	16.5	4.0	7.5
Annapolis, Md.	14.3	17.8	5.0	10.0
Baltimore	13.8	17.3	5.0	8.5
Cumberland	15.3	18.8	5 0	12.7
Wash'g'n, D. C.	12.0	15.5	3 0	9.5
Danville, Va.	16.3	19.8	6 0	12 9
Norfolk	14 8	18.3	6 0	11.3
Petersburg	15 5	19.0	6.0	11.4
Richmond	15 5	19 0	6.0	11.7
Roanoke	15.0	17.0	6 0	12 9
Charles'n, W.Va.	14 7	18.2	5.0	12.6
Parkersburg	14.0	17 5	5 0	11.2
Wheeling	15.0	18 5	5 0	12 2
Charlotte, N. C.	18.1	21.6	7.0	13.5
Hickory	18 4	21 9	7 0	13.7
Mt. Airy	18 4	21 9	7.0	13 8
Raleigh	17 9	21.4	7.0	13.3
Salisbury	16.0	18.0	7.0	13 6
Charleston, S.C.	15 9	19 4	7.0	11.3
Columbia	17.7	21.2	7 0	13.2
Spartanburg	16.75	19 0	7.0	13.5

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at regular price less one-half cent. Discount for kerosene, 1 cent off tank wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount is given.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	17 6	19.6	6 0	10 1
McCook	18 3	20 3	6 0	10.8
Norfolk	18 0	20.0	6.0	10.5
North Platte	18 4	20 4	6 0	10.1
Scottsbluff	19 1	21.1	6.0	11 6

Note: Discounts to dealers; where service station gasoline prices are (maximum overall, including rent) as follows: Reliance, 2½ cents; Standard Red Crown, 3½ cents; Red Crown Ethyl, 3½ cents.

Where service station gasoline prices are below normal, resellers' allowances are reduced one-half of the amount below normal, down to the following (minimum overall, including rent): Reliance, 2 cents; Standard Red Crown, 3 cents; Red Crown Ethyl, 3 cents. Discounts to consumers for tank wagon deliveries covered only by Standard Commercial Consumers Contract, effective January 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.	17.5	21 0	‡8.0	†13.0
Baton Rouge	16.5	20.0	†7.0	12.0
Alexandria	17 0	20.5	††8.0	10 0
Lafayette	17 5	21.0	‡*8.0	12.0
Lake Charles	17.5	21.0	††8.0	12.0
Shreveport	15.5	19 0	†7.0	12.0
Knoxville, Tenn.	19.5	23.0	8 0	13 5
Memphis	17.5	21.0	8.0	10.5
Chattanooga	19.0	22.5	8.0	11.0
Nashville	18.5	22.0	8.0	13.0
Bristol	18 3	21 3	8.0	14.0

*Includes city tax of 1 cent.

‡Includes 2-cent parish tax. †Includes 1-cent parish tax.

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at dealer price less one-half cent.

Louisiana kerosene prices include 1-cent state tax.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA.

	Gasoline: Tank wagon†	Gasoline: Posted retail	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco	16 5	18.5	4 0	11.5
Los Angeles	16.0	18.0	4.0	10.5
Fresno, Calif.	17.0	19.0	4.0	12.0
Phoenix, Ariz.	20.0	22 0	6.0	‡18.0
Reno, Nev.	19.0	21.0	5.0	13 0
Portland, Ore.	19.0	21.0	6.0	13.0
Seattle, Wash.	19.0	21.0	6.0	13.5
Tacoma	19.0	21.0	6.0	13.5
Spokane	22 0	24.0	6.0	16.5

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

‡Includes 5-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Phil'delphia, Pa.	14.0	16.0	4.0	9.0
Pittsburgh	15.0	17.0	4.0	10.0
Allentown	14.5	16.5	4.0	10.0
Erie	15.0	17.0	4.0	9.0
Scranton	15.0	17.0	4.0	10.0
Altoona	15.0	17.0	4.0	10.0
Dover, Del.	14.5	16.5	4.0	10.0
Wilmington	14.5	16.5	4.0	9.0
Springf'd, Mass.	13 0	14 0	4 0	8.0
Worcester	13 1	16 6	4.0	8.5
Hartford, Conn.	12 1	15.6	3 0	7.5
New Haven	12.0	15 5	3 0	8.0
Providence, R.I.	11 8	15 3	3 0	7 0

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

Canada*

Imperial 3-Star Gasoline

IMPERIAL OIL, LTD.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Hamilton, Ont.	†22.0	25.0	6.0	17.5
Toronto, Ont.	†22.0	25.0	6.0	17.5
Brandon, Man.	30.3	33.3	7.0	21.8
Winnipeg, Man.	27.7	31.7	7.0	20.2
Regina, Sask.	29.0	32.0	7.0	21 5
Saskatoon, Sask	31.8	34 9	7 0	24 3
Edmonton, Alta.	32 2	35.2	7.0	23 7
Calgary, Alta.	29 5	32 5	7 0	21.0
Vancouver, B.C.	27.0	30.0	7.0	24.0
Montreal, Que.	24.0	27.0	6.0	17.0
St. John, N.B.	26.0	30.0	8.0	19.5
Halifax, N. S.	26.0	30.0	8.0	19.5

*Imperial gallon used in Canada. †Governed by service station price.

Maritime provinces, all dealers 4 cents off service station price. All other provinces open dealers 3 cents per gallon off service station price (except Toronto and Hamilton cities which are—open dealers 2½ cents off service station price) 1 cent additional to 100 per cent accounts.

Naphtha

STANDARD OIL CO (INDIANA)

	Tank wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago, March 12, 1935. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

New York and New England

SOCONY-VACUUM CO., INC

	Gasoline: Posted dealer	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	14.0	17.5	5.0	8.0
*Met. New York	14.25	18.0	5.0	7.75
*Br'kl'n, Queens	14.0	17.5	5.0	7.75
Buffalo	14.7	18.2	5.0	8.0
Rochester	14.7	18.2	5.0	8.5
Syracuse	14.5	18.0	5.0	8.75
Boston, Mass.	13.0	16.5	4.0	7.5
Portland, Me.	14.7	18.2	5.0	8.75
Manch't'r, N.H.	14 8	18.3	5.0	9.0
Burlington, Vt.	16.2	19.7	5.0	9.0

*Includes 2 per cent city sales tax.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Ohio points	16.5	18.5	5.0	*12.5

*Includes state tax of 1 cent, effective July 22.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Standard Oil Co. of Nebraska, April 29, advanced station gasoline .4 cent in Scotts Bluff. May 3, advanced tank wagon and station gasoline .3 cent throughout Nebraska.

Atlantic Refining Co., April 22, advanced station gasoline 2 cents in Providence. April 27, advanced station gasoline 2 cents in Worcester.

Standard Oil Co. of New Jersey, April 14, advanced station gasoline .25 cent in Wheeling; April 25, advanced tank wagon and station gasoline .25 cent. April 26, reduced tank wagon gasoline 1.25 cents and station gasoline 2 cents in Salisbury. April 30, advanced tank wagon and station gasoline .8 cent in Atlantic City.

Standard Oil Co. of Indiana, May 2, advanced tank wagon and station gasoline .3 cent in Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, North Dakota and South Dakota.

Socony-Vacuum Oil Co., Inc., May 1, advanced tank wagon gasoline .625 cent and station gasoline 1 cent in metropolitan New York. May 6, advanced tank wagon gasoline .625 cent and station gasoline 1 cent in Brooklyn, Queens; advanced tank wagon and station gasoline .2 cent in Boston, Portland, Manchester and Burlington.

Magnolia Petroleum Co., May 1, reduced tank wagon and station gasoline 1 cent in Dallas and San Antonio; advanced tank wagon and station gasoline .5 cent in Fort Smith, Little Rock and Texarkana.

Fuel Sales to Vessels of War Declared Not Taxable

The Internal Revenue Bulletin for April 15 contains a ruling regarding the taxability of fuel and lubricating oil used in certain Government airplanes. The ruling follows in part:

"Where the airplanes constitute a part of the legitimate equipment of vessels of war of the United States, sales of lubricating oil and gasoline by the manufacturer thereof for use in such airplanes are held to be sales for use as ships' stores on vessels of war of the United States, within the meaning of section 630 of the Revenue Act of 1932, as added by section 5 of the Act of June 16, 1933, supra. Such sales are, therefore, exempt from the taxes imposed by section 601 (c) 1 of the Revenue Act of 1932, as amended, and section 617 of that Act, as amended, when made in accordance with the provisions of article 28 of Regulations 44 (revised September 1934)."

NEWS FROM FOREIGN LANDS

U. S. S. R.

Considerable crude oil production and refinery products were stored in the U. S.S.R. in 1934, according to European estimates. The estimate is based on complete data covering crude oil production, crude runs to stills, exports and domestic consumption. These reports indicate that with a 13 per cent increase in crude oil supply, domestic consumption was approximately the same as in 1933 with a decrease in exports leaving a surplus of supply over demand which presumably went to storage facilities. The following table summarizes the supply and demand figures for 1934 and 1933 (data in tons):

	1934	1933
Crude oil production	24,150,000	21,433,000
Crude runs to stills	20,736,000	18,517,000
Exports	4,315,000	4,929,000
Domestic demand*	12,800,000	13,000,000

*Estimated.

MANCHUKUO

Reports over the past week from the Orient indicate that efforts to secure modification of the regulations applying to the oil monopoly in Manchukuo have been unsuccessful. The monopoly became effective on April 10 and distribution and sale of petroleum products are now being carried on under regulations established by the government.

Under the regulations announced, private interests which have been operating in Manchukuo previous to the monopoly have been given until May 10 to submit propositions as to the disposal of their properties and also accept or reject offers which have been made in regard to furnishing products to the monopoly on a wholesale basis. The principal private interests affected by the monopoly are the marketing units of the Standard-Vacuum Oil Co., Shell interests and the Texas Co. These companies have been distributing about 80 per cent of the petroleum products consumed in Manchukuo. Under the monopoly it is understood that they have been offered the opportunity to furnish approximately 14 per cent of the products to be distributed by the monopoly. Reports indicate that this latter proposition will not be accepted and the interests concerned will endeavor to secure full payment for their marketing properties and businesses located in Manchukuo which they have established over a period of years.

The monopoly is now securing the bulk of its products from a new refinery located at Dairen in Manchukuo and operated under the name of the Manchukuoan Oil Co., and controlled by Japanese capital. Little is known regarding this plant. Its rated crude oil capacity has been reported as high as 5,000 bbls. daily with cracking facilities. This capacity is more than sufficient to provide the entire requirements of Manchukuo, which are estimated at 2,000 bbls. daily for all products. The company has been acquiring crude oil supplies to operate the refinery from producing companies in the United States over a period of several months.

The issues involved in the oil monopoly of Manchukuo are considered of widespread importance in trade relationships of the Far East and developments have been closely followed by private interests other than those connected with the oil industry. Diplomatic protests in regard to the monopoly have been made to the Japanese government by the United States, Great Britain and the Netherlands claiming that it was a violation of the Nine-Power Treaty and the Open Door policy in China. These protests have been based on the contention that Manchukuo is a "puppet" state created in Manchuria by Japan. The latter country has refused to recognize the validity of these protests, taking the position that Manchukuo is an independent country over which it has no responsibility or control.

G. S. Walden, chairman of the board of the Standard-Vacuum Oil Co. and P. W. Parker, president of the company, are en route to the New York offices of the company from the Orient where they have spent several months in connection with the negotiations applying to Manchukuo and also Japan. F. Godber, who represented the Shell interests, arrived in the United States last week en route to London headquarters. The Standard-Vacuum and Shell companies, as the principal interests affected, have also been concerned in the new regulations regarding oil operations in Japan. Settlement of points of differences between the government and oil companies in regard to these regulations are pending.

IRAQ

The crude oil deliveries at the Tripoli and Haifa terminals of the pipe line of the Iraq Petroleum Co., Ltd., in March totaled 322,589 tons, according to an official report. This total for the month amounts to a daily average of 61,800 bbls. (42 gallons). It is reported that the line is now making deliveries at the two terminals of approximately 85,000 bbls. daily which is rated capacity of the present pipe line facilities.

PRODUCTION

The "Telegraaf," in a recent issue, gave the following estimates as to the crude oil production of the subsidiaries of the Royal Dutch-Shell by countries for 1934 and 1933 (data in tons):

	1934	1933
Venezuela	8,124,000	7,597,821
United States	5,600,000	5,514,854
Netherland Indies	4,550,000	4,192,514
Mexico	2,443,000	2,016,263
Rumania	1,737,000	1,304,372
Argentina	355,000	351,274
Brunei	300,000	288,666
Sarawak	298,000	334,813
Egypt	211,000	232,451
Trinidad	149,500	124,359
Total	23,767,500	21,957,392

GREAT BRITAIN

The latest available report of the Government shows that Iraq has supplanted other countries as the principal source of crude oil supply for refineries of the United Kingdom. The report shows that for the first quarter of this year, 33,247,000 imperial gallons or 949,100 bbls. (American) of the Iraq crude were imported by refiners of the United Kingdom. This daily average of 10,500 bbls. was approximately one-third of the crude oil imports which totaled 109,233,000 imperial gallons or 34,700 bbls. daily.

There was a slight increase in total crude oil imports into the United Kingdom the first quarter but this was not sufficient to offset the increase in Iraq imports which were not a factor a year ago. This situation has meant that the Iraq imports have had to be offset with decreases from other countries. This situation is shown in the accompanying table giving imports of crude oil into the United Kingdom for the first quarter of 1935 and 1934: (data in imperial gallons)

	1935	1934
Iraq	33,247,000	
Persia	26,792,000	54,597,000
Mexico	24,490,000	32,288,000
Peru	16,502,000	14,583,000
Netherland West Indies	4,172,000	3,411,000
Venezuela	1,516,000	2,094,000
Other countries	2,494,000	2,357,000

This table shows that decreases in crude oil imports from Persia, largely offset the Iraq supply. The Anglo-Persian Oil Co., Ltd., which imports the Persian crude is one of the four principal owners of the Iraq production and the Government reports indicate that in the future the company will use a large percentage of Iraq crude oil at its plants located in Great Britain.

The imports of refinery products for March showed a decline when compared with previous months and the same month in 1934. This reversal in trend accounts for the fact that for the entire quarter, total imports were slightly less than the first quarter of 1934.

The fact that Iraq crude oil is now available in United Kingdom has also had some effect on the sources of supply of imports of refined products. In the adjustments that have been made due to this situation refiners in United States based on figures for the first quarter have been the greatest sufferers. Gasoline imports from the United States for the quarter decreased 50 per cent with substantial declines in all the other principal refinery products.

It is expected that the availability of Iraq crude oil will result in other adjustments in the import situation of the United Kingdom before the end of the year. The princpal owners of the Iraq concession with the exception of the French interests are all distributors or refiners in the United Kingdom. To take care of their share of the Iraq production, deliveries of which now total approximately 85,000 daily, it will be necessary for them to make shifts in their present European operations involving shipments from United States, Persia, South America and Rumania.

The following table summarizes the imports for the first quarters of 1935 and 1934: (data in Imperial gallons)

	1935	1934
Crude oil	109,233,000	99,320,000
Gasoline	277,895,000	263,553,000
Kerosene	56,425,000	68,021,000
Lubricating oil	19,364,000	24,278,000
Gas oil	33,830,000	33,164,000
Fuel oil	140,078,000	150,562,000

MEXICO

Following are the values established in Mexico as a basis for taxation in Mexico covering April operations (calculated in silver at exchange of 3.60):

VALUES

	Silver pesos per cubic meter	U. S. currency
Fuel oil	27.17	$1.20 bbl.
Gasoline	65.91	.0693 gal.
Kerosene	53.45	.0562 gal.

PRODUCTION TAXES

	Tax per c.m.-pesos	Tax in U.S. currency
Crude (sp. gr. 0.93= Be. 20.38)	3.140	$0.13866 bbl.
Crude (sp. gr. 0.96= Be. 15.68) or heavier	1.907	.08422 bbl.
Fuel oil (sp. gr. 0.95= Be. 17.21)	2.934	.12957 bbl.
Gasoline (crude)	2.636	.00277 gal.
Gasoline (refined)	1.318	.00138 gal.
Kerosene (crude)	3.207	.00337 gal.
Kerosene (refined)	1.604	.00168 gal.

The production tax on fuel oil will vary approximately .01062 per barrel for each degree of specific gravity above (deduct) or below (add) .095 specific gravity.

The production tax on light crude will vary approximately .01137 per barrel for each degree of specific gravity above (deduct) or below (add) 0.93 specific gravity.

EXPORT TAXES

Note: As export taxes are payable in silver at par, to make calculations in U. S. currency, take figures given below, multiply them by 2 and divide by rate of exchange at time of payment.

	($1.00 for 2 pesos) U. S. currency
Crude (sp. gr. 0.93= Be. 20.38)	$0.07949 bbl.
Crude (sp. gr. 0.96= Be. 15.68) or heavier	.04928 bbl.
Fuel oil (sp. gr. 0.95= Be. 17.21)	.05962 bbl.
Gasoline (crude)	.00472 gal.
Gasoline (refined)	.00189 gal.
Kerosene (crude)	.00151 gal.
Kerosene (refined)	.00057 gal.

PERSIA

Crude oil production in Persia for the month of March averaged 157,000 bbls. daily, a 13.5 per cent increase over March, 1934, according to preliminary figures for the month. The following table summarizes the crude oil production figures for the first quarter (data in tons):

	1935	1934
March	697,000	612,033
First quarter	1,914,000	1,805,260

Office headquarters of Shell interests in Berlin, Germany. This building is one of the sights of outstanding interest shown to visitors in Berlin

It Costs You Money to Tie His Hands

● Every time you refuse your plant engineer's request for replacements you may be tying his hands and costing yourself money. Your plant cannot be operated at maximum efficiency with worn-out or obsolete equipment. Penny leaks grow into dollar losses.

Before you say "no" to plant expenditures, make a thorough checkup with your engineer. To minimize interruptions in service and secure general economy in maintenance, assure yourself that valves and fittings are selected for the particular service to be performed, that your piping is properly sectionalized. Guard against the small losses that grow into high production costs.

A new Crane steam trap here, replacement of a pipe line there, may mean the difference between red and black figures on your books. A silk mill in New York state revamped its boiler room, using Crane material exclusively, at an expense of approximately $1,000. It is now operating its plant at a saving of 10% in fuel and has increased plant production 30% *without adding any extra equipment!*

For seventy-nine years, sturdiness and precision of a character peculiarly Crane's have been built into our valves, fittings and fabricated piping. They are distinguished by long and efficient performance.

Crane engineers will gladly co-operate to show you many avenues to plant economy and efficiency. We will send you without obligation our Plant Checkup List. Write for it today.

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NEWS FOR PETROLEUM REFINERS

American Oil to Build Terminal at Pittsburgh

The American Oil Co., marketing subsidiary of the Pan American Petroleum & Transport Co., has completed plans for the installation of a large river terminal on the Monongahela River at Hays, Pa., near Pittsburgh. It is said that the terminal when completed will involve an expenditure of approximately $1,000,000. It is located on a 10-acre site where large storage facilities will be erected. The terminal will be the source of supply for distribution of the American company in the Pittsburgh area where it has rapidly expanded its marketing outlets in recent years. The terminal will have tank car loading racks as well as facilities for loading trucks.

The terminal will secure gasoline and other petroleum products by barge from the new refinery of the Pan American Refining Corp. at Texas City, Tex., via the Gulf of Mexico and the Mississippi and Ohio Rivers. The terminal will be completed as quickly as possible.

Saturation Point for Cars Is Not Reached

NEW YORK, May 3.—There are approximately 26 motor cars to every mile of surfaced highway in the United States, according to John D. Collins, sales manager of the Tide Water Oil Co.

"If all the nation's automobiles were placed on the surfaced highways at one time there would be 203 feet of improved roadway for every car. There are 3,040,000 miles of roadway in the United States, and of this total slightly more than 920,000 are hard surfaced. Of this latter total only 300,000 or slightly more, are state highways and about 620,000 are local roads. This leaves 60,000 miles of 'key state' highways that could be improved and the enormous total of 2,060,000 miles of rural roads unimproved up to our present standards.

"Thus the road situation is far from complete and accordingly the automobile industry is still far from the saturation point. For every mile of surfaced highway there are more than 2 miles of roads awaiting improvement, rebuilding or new building. These figures do not include the thousands of miles of paved and unpaved streets in towns or cities.

"Expansion of America's motor highway systems must keep pace with the ownership of automobiles if two of America's leading industries are to continue to go forward. The oil industry has outstripped both the automobile industry and road building in providing proper touring facilities for the nation's motorists.

"The problem of furnishing easily accessible supplies of motor fuel and lubricants is being met by Tide Water and other large refiners with the constant extension of their nation-wide chains of gasoline stations, so that motorists are assured of convenient service."

OPEN BULK OIL STATION

COUTTS, Alberta, May 7.—The Great West Distributors, Ltd., have opened a bulk oil station here with Leland Shields of Lethbridge as local manager. The station will handle gasoline and tractor fuels from the Coutts refineries and lubricants and greases from outside points, operating its own trucks, with distribution to Southern Alberta points. J. V. Johansen of Lethbridge supervised the opening.

Centrifugal Force Used as an Aid in the Extremely Close Fractionation of Oils

NEW YORK, May 3.—Sharing major interest with reports on the pyrolysis and polymerization of hydrocarbon gases at the meetings of the petroleum division of the American Chemical Society this week was a paper by Dr. Walter J. Podbielniak explaining the application of equipment perfected at his Chicago laboratory involving what was described as a "new basic principle in the design of fractionating, absorbing and other countercurrent fluid-reacting equipment."

The use of centrifugal force permits much greater compactness and high vapor and liquid velocities. Greater intimacy of contact is possible. Discussion indicated that the development described as "revolutionary" in character would probably prove of widespread importance in the manufacturing phases of the oil business, including the solvent refining of lubricating oils.

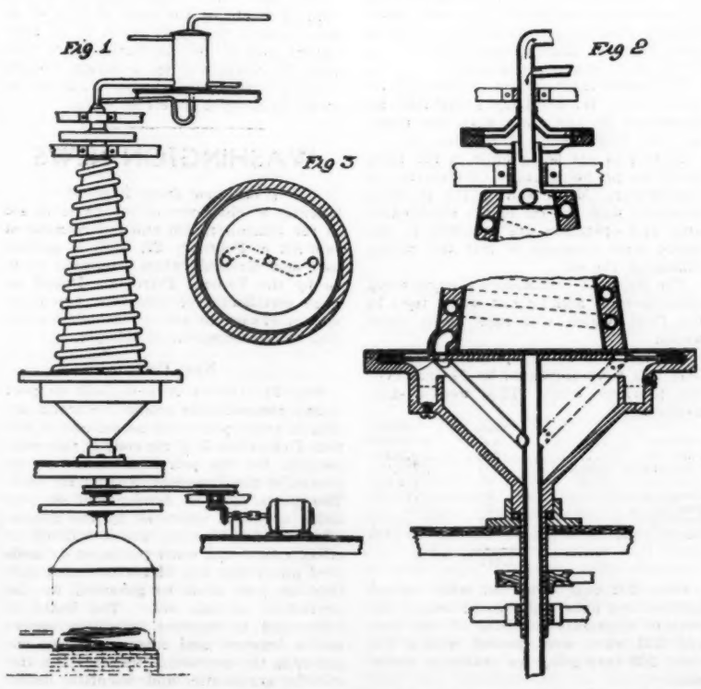
The author's description of the apparatus shown in the accompanying diagrams Nos. 1, 2 and 3 in part was as follows:

"Figures 1, 2 and 3 illustrate a type of centrifugal fractionating apparatus in which a single conduit (which is shown circular in the drawings, but may preferably be rectangular with cross section oriented so liquid layer lies the long way of the section) is coiled on a conical support with constantly increasing radius. The upper small end of the conical coil is led to the condenser through a centrifugal liquid seal, similar in principle to the water seal used in certain steam turbines, and which, when properly designed, makes possible almost complete freedom from leakage at high speeds combined with low friction loss and no need for attention to maintenance of any kind. The lower larger end opens into a chamber, which incorporates another centrifugal liquid seal and a stationary reflux liquid collecting disc. The conical support, coil, centrifugal liquid seal casings, and the lower enlarged chamber, all rotate as a unit, while the condenser and kettle are, of course, stationary. By the action of the centrifugal force field generated within the coil by the rotation, the reflux liquid from the condenser is continuously forced to flow in a thin layer from top to bottom and outwardly with relation to axis of rotation, until it collects in the annular portion of the enlarged chamber at bottom, whence it is collected through the openings in the stationary liquid collector disc and expelled into the kettle.

"The vapor from the kettle is forced through the entire coil in positive and extremely intimate countercurrent relation by virtue of pressure difference between kettle and condenser.

"The centrifugal liquid seals may be filled with suitable high density liquid insoluble in the reflux liquid and substantially nonvaporizing at the temperatures used. Their design may also be modified to permit using reflux liquid itself as the seal liquid.

"Obviously, there is no close or definite limit on the length of conduit which may thus be coiled in the apparatus, in a very small space. Also the speed of rotation may be increased to permit the use of very high vapor and liquid velocities within the conduit, without the slightest entrainment and without flooding. The conical support construction is rather clumsy from a practical standpoint, although it does permit small increase of radius per turn and the use of high rotative speeds."



View of centrifugal fractionating apparatus

Furfural to Be Used in New Gulf Solvent Unit

The Gulf Refining Co. has completed plans for the installation of a furfural solvent plant at its Port Arthur, Tex., refinery. The plant will have a capacity sufficient to handle 5,000 bbls. of overhead stock and will be one of the largest if not the largest single solvent unit that has been erected since the advent of solvent refining for lubricating oils.

The company is completing a benzol-acetone dewaxing plant at the Port Arthur refinery and it will start operating this month. The capacity of the plant is approximately 1,200 bbls. daily. The company recently completed a solvent plant at its Philadelphia, Pa., refinery incorporating the Duo-Sol process.

New Shipping System by Water Begins June 1

The first continuous system for the direct water transportation of gasoline from Texas to the interior of Pennsylvania will be inaugurated June 1, when the Republic Oil Corp. takes over the service stations of the Shell Oil Co. in Pittsburgh. The gasoline will be shipped from the Republic refinery at Texas City, Tex., by tank ship to New Orleans. At that point it will be transferred to river barges and brought up to Pittsburgh. It is estimated that 20,000,000 gallons will be shipped to Pittsburgh annually by this method.

The Republic Oil Corp. recently purchased the refinery of the Waverly Oil Co. near Pittsburgh, and will use the 5,000,000 gallon storage facilities as a bulk terminal for tank car and truck distribution. Operation of the Waverly refinery will not be attempted. These steps together with the acquisitions of other companies brings Republic's marketing outlets to the total of 875 in the Pittsburgh area.

NEW RIO GRANDE PLANT

Construction of another refinery to handle lower Rio Grande Valley crude was started the latter part of the week at Sullivan City. The new refinery will handle from 1,000 to 1,500 bbls. crude daily from the Sam Fordyce Field in Hidalgo County, and is being constructed by a group of East Texas and Valley men, headed by Ed. W. Sullivan and Judge E. C. Couch of Sullivan City.

REFINERY SOLD

The Penn-Tex Producing & Refining Co.'s (Henry Wittmer and others, Pittsburgh, Pa.) have sold their 300-bbl. skimming plant at Echo in Coleman County to Walter L. Jones and R. D. McGlothlin of Abilene, who are dismantling and moving to Goldsboro near the Centennial Oil & Gas Co.'s Pool in the northwest part of the county. Oil from this pool will be run to the plant.

TURNER VALLEY PRICES

A statement issued last week by the Producers' Marketing Committee, representing shareholders and royalty holders in the Turner Valley Field, Alberta, Canada, claims that the existing price of $2.31 a barrel for discolored naphtha from the Turner Valley wells will not amortize the producers investment. Of the retail price of 32.5 cents a gallon, only 6.6 cents go to the producer.

OPERATIONS RESUMED

COUTTS, Alberta, May 7.—The British-American Oil Co. refinery here resumed operations recently after a few weeks' shutdown.

Late Fields

OKLAHOMA

Sinclair Prairie Oil Co. and Slick Urschel, Inc.'s No. 1 Koatsch, SW SW SW Section 23-15-3w, in Logan County, Oklahoma, 9 miles from the nearest production, which is in the Edmond Pool in Oklahoma County, was opened for 25 minutes on Tuesday morning and flowed 70 bbls. of oil. The hole is not cleaned out. It was shut down awaiting the installation of a separator and tankage.

Atlantic Oil Producing Co.'s No. 1 C SE NW SW Section 22-22-2w, Polo Pool, Noble County, had Dolomite at 4,885 feet and set pipe at 4,892 feet. Dolomite sand was found at 4,930-34 feet. The well made a flow through the mud and was then shut in. When re-opened it blew the control head off and flowed 40 bbls. of oil per hour, but there was no estimate on the gas.

In Canadian County, R. Carl Larkins and Anderson & Kerr's No. 1 Provines, NW NW NE Section 33-13-5w, was drilling at 5,920 feet on Monday. It had a showing of oil and gas in rotary cuttings in lime at 5,700-40 feet. The drill passed out of the lime at 5,741 feet.

Delaney and others appear to have a west extension well in their No. 1, C NE SE SE Section 26-2-6, Fitts Pool, Pontotoc County, Bromide sands at 4,220 and 4,295 feet, both show oil saturation. The hole was at a total depth of 4,320 feet and the crew was preparing to wash in.

Phillips Petroleum Co.'s No. 4, C SE SE SW Section 25-2-6, showed salt water and a scum of oil at a total depth of 4,415 feet and was plugged back to 4,393 feet and redrilled. It was swabbing mud, oil and salt water. No. 7 on the same lease, C NW NE SW Section 25-2-6, had Bromide at 4,125 feet and sands at 4,220 and 4,295 feet. The sands showed oil saturation. It was drilling at 4,305 feet.

Moore and others' No. 3, C NW NE NW Section 31-2-7, in the Fitts Pool, had Bromide at 3,985 feet, sands at 4,090 and 4,195 feet and McLish lime at 4,226 feet, total depth. It flowed 225 bbls. the first hour and 195 bbls. the second hour through casing. Same operators' No. 4, C NE NE NW Section 31, had Bromide at 3,880 feet, sands at 3,975 and 4,070 feet and McLish at 4,107-15 feet, total depth. It flowed 394 bbls. the first hour and 315 bbls. the second hour through casing.

Gasoline Maintains Its Strength in Group 3

(Continued from Page 24)

ural gasoline and the refined product is certain to be narrowed. So as fast as they draw on their own stocks of natural they replenish their supply to take advantage of present prices.

Notwithstanding Oklahoma bright stock prices usually trail Pennsylvania's, it was believed the half-cent advance in Pennsylvania would not be followed. The feeling was that Pennsylvania bright stocks were merely being put back where they had belonged anyway.

Wax, which had been looking a little better, was unchanged.

CANADIAN GAS PRODUCTION

OTTAWA, Canada, May 4.—Natural gas production from all Canadian fields in February totaled 2,353,712,000 feet against 3,242,964,000 feet in January and 2,697,423,000 feet in February, 1933. Production for the two months of 1935 was 5,596,676,000 feet compared with 5,658,876,000 feet in same period of 1934.

Imports of mixed (natural and artificial) gas from the United States in February totaled 8,602,000 feet valued at $6,022, against 9,700,000 feet valued at $6,267 in January.

MAGNETIC STORM

Tucson, Ariz., office of U. S. Coast and Geodetic Survey report moderate magnetic storm started at 6 a.m. (C.S.T.) on May 1 and ended at 8 a.m. (C.S.T.) May 2. Telegram follows:

"Storm began first. Twelve. Moderate. Ended second. Fourteen."

Blazer Committee Majority Concludes Refined Prices Can Hold Crude Rate

WASHINGTON, D. C., May 7.—When the petroleum code survey committee on small enterprise submitted its report to Petroleum Administrator Ickes, it included among its recommendations the statement that if wholesale gasoline prices did not advance to an approximate parity with crude prices within about 30 days, an immediate reduction should be made in the price of crude oil to a parity with refined products.

Paul Blazer, chairman of the committee, has now advised the Petroleum Administrative Board in an informal opinion that the majority of the committee believe refined prices have advanced sufficiently to obviate necessity for a crude cut. This conclusion was reached in anticipation of additional advances in tank car and retail prices. The majority of the committee feels an advance of at least another quarter cent is essential and if not forthcoming believes a decline of approximately 5 cents per barrel should be made in crude prices.

Mr. Ickes declined to comment on the petition adopted by the directors of the American Petroleum Institute at the Chicago meeting.

Three-Judge Federal Court Denies Plea for Injunction in East Texas Cases

By L. E. BREDBERG

FORT WORTH, Tex., May 6.—An important decision was rendered against impounded alleged "hot" oil and products by a three-judge Federal Court on May 2, at Houston. In three cases, asking injunctions to prevent the Railroad Commission from interfering with movement of 500,000 bbls. without tenders, the court decided the state had power to prohibit movement of such oils or products interstate or intrastate. The Hercules Oil Co., H. T. Melton and G. C. Peterson had brought the suits.

Part of the decision reads: "We think it may not be doubted the state has the right to prohibit the production of oil to prevent waste, because such production is in the nature of a public nuisance, and that it may make and authorize all reasonable regulations to bring about abatement of this nuisance, extending to preventing movement in commerce of illegally produced oil and its products.

"As to the products in question, it cannot be claimed the statutes have retroactive operation. It is most clear they are the products of illegally produced oil. As to such products, at least in the absence of clear proof of ownership acquired in them for value and with real bona fide, there is no violation of constitutional law in prohibiting their movement." (Railroad Commission vs. Burnham, State vs. Blue Diamond.)

The suits may be appealed.

The same three judges granted an injunction to W. D. Lacy preventing interference by the state with the movement of 13,900 bbls. of fugitive oil.

More pits are being built in the field, one large pit being under construction at Gladewater. Much salt water is being produced with the oil in the Gladewater area and operators are expected to impound large amounts of this salt water, skimming the oil.

The Railroad Commission's engineering department is making salt water tests in the field, which will take about three weeks.

Shipments of refined products from the field this week increased by 54 cars over the previous week. This week's shipments were:

	Cars	Gallons
Gasoline	545	4,458,900
Fuel oil	215	2,028,825
Casinghead gasoline	135	1,188,760
Kerosene	57	459,935
Distillate	90	729,295
Gas oil	23	185,840
Residuum	15	146,040
Naphtha	10	75,145
	1,091	

Only 202 cars went out with federal tenders, and none under court orders. Interstate shipments consisted of 501 cars and 321 cars were moved within the state, 269 cars going for coastwise movement.

Overproduction increased to an estimated 34,000 bbls. per day. About 455 tank trucks were carrying products from the field daily, each truck averaging 950 gallons. A large quantity of kerosene has been moving out by trucks, later being mixed with gasoline.

The Attorney General's Department is now filing on employes of refineries to prevent them from carrying on the business after plant owners have been enjoined from operating on illegal crude.

Some independent refiners are trying to obtain legal crude, but they are having difficulty. A meeting is expected to be called by the Railroad Commission to straighten out this situation.

There were 33 plants operating in the field this week, not all of them continuously. Runs to the plants averaged 48,000 bbls., an increase of over 16,000 bbls. per day.

The daily allowable as of May 3 was 447,760 bbls. from 17,045 wells, 2,818 bbls. marginal. J. E. Bailey, head of the engineering department of the Railroad Commission at Kilgore, expressed opinion the field could stand a daily allowable production of 450,000 bbls. without too great a drop in bottom hole pressure if production in excess of the allowable is completely stopped.

The new state conservation law preventing waste by the open storage of oil was invoked this week when C. A. Davenport and H. W. McCurley were temporarily restrained by a Gregg County district court from storing crude oil or products in open or earthen pits.

WASHINGTON NEWS

(Continued from Page 8)

tificates of clearance or otherwise to aid in the administration and enforcement of said act of February 22, 1935, is authorized and directed, when requested so to do by the Federal Petroleum Board, to issue certificates of clearance hereunder and otherwise to aid in the administration and enforcement of this act.

New Pools

Sec. 11. (New) A new field or pool is any commercially productive accumulation of crude petroleum as defined in section 7 of article 3 of the code of fair competition for the petroleum industry approved by the President, August 19, 1933. The plans for the development of new fields or pools, approved by the administrator of said code, are continued in effect unless and until rescinded or modified under this act. Hereafter, each new field or pool shall be governed by the provisions of this act. The board is authorized to approve voluntary agreements between and among persons engaged in the petroleum industry for the orderly, systematic, and scientific development of new fields or pools where it finds after proper hearings that such agreements will protect interstate or foreign commerce, prevent waste, and aid in providing for the national defense. Whenever any such agreement has been executed by a majority in both number and interest, as determined by the board and approved by said board, and the board has reason to believe that any person is engaged in drilling or other activities affecting said new field or pool which disrupt or threaten to disrupt the effective operation of the agreement or plan incorporated therein, the board shall immediately call a hearing at a time and place convenient to all parties in interest as determined by it, and shall through the medium of such hearing determine whether the purpose of this act to protect interstate or foreign commerce, to prevent waste, and to aid in providing for the national defense, will be defeated or threatened with defeat by such drilling or other activities, and should it find that such purposes will be defeated or threatened with defeat, it shall order such person to cease and desist from such drilling or other activities and a violation of such order shall be a violation of this act.

In the approval of any such agreement relating to any new field or pool located within any state in which there is a duly established regulatory commission or agency charged with the duty of conserving oil and gas and preventing the waste thereof, the board is directed to consider such agreement jointly with such commission or agency, or representatives thereof, before granting approval to such agreement.

Sections 12, 13, 14, 15 and 16 of the original bill were unchanged, and renumbered as Sections 13, 14, 15, 16 and 17, respectively.

State Production Control

The original Section 17 was stricken out and Section 18 substituted:

Sec. 18. In any state in which there is or hereafter shall be under state law a duly constituted authority so to do, the amount of production of crude petroleum in the state and the pools, fields, leases, and properties located herein shall be regulated and determined by such state authority. When no applicable quota prescribed under section 9 is in effect, it shall be unlawful and a violation of this act for any person to produce crude petroleum in excess of the amount permitted under such state law or under any ruling, regulation, or order made pursuant thereto, or to place, receive, or transport in intrastate commerce crude petroleum produced in excess of such amount, or products derived therefrom in whole or in part, such acts being here found to affect commerce among the states and with foreign nations, and to cause waste.

In any state or area in which there is no authority under state law authorized to regulate or determine the amount of production of crude petroleum, it shall be unlawful and a violation of this act for any person to produce crude petroleum in excess of any quota prescribed under section 9 of this act.

"Existing Legislation"

Sec. 19. This act shall not be construed to repeal such portions of the code of fair competition for the petroleum industry, adopted pursuant to the National Industrial Recovery Act, as are not necessarily inconsistent herewith, nor shall this act be construed to repeal the act of February 22, 1935, entitled "An act to regulate interstate and foreign commerce in petroleum and its products by prohibiting the shipment in such commerce of petroleum and its products produced in violation of state law, and for other purposes."

NEW JERSEY DIVIDEND

NEW YORK, May 6.—Directors of the Standard Oil Co. of New Jersey have declared the usual semiannual dividend of 50 cents on the capital stock, payable June 15 to stock of record May 16. The distribution will amount to about $12,800,000.

Diesel and Gas Individual Well Pumping Units and Their Operation

By GLENVER McCONNELL
Shell Petroleum Corp.*

GLENVER McCONNELL

Individual engine units for pumping oil wells match the importance of the rig machine itself. We find ourselves facing oil production and equipment methods of a new order. The so-called standard rig layout for individual wells yields more and more to the creation of new and sundry devices. In most cases it is still necessary to drive a crankshaft if we wish to impart reciprocating pump motion in some fashion to a subsurface pump.

Whereas individual steam engines were used initially for a period of almost four decades, followed by the oil field single cylinder gas engine almost exclusively for another three decades, plans and methods now point clearly to a wider range of selectivity of suitable internal combustion power units for individual pumping machines.

Good individual well machines will always be popular and a pride to the operator. Their functional necessity appears to be on the increase. Often this is due to the present method of establishing ultimate daily production capacity of wells to form a basis for allowable production. For this purpose group hook-ups of a number of wells to one central power is less successful than by having wells individually powered. We find also that deep wells, and wells that are isolated one from another, and the definite influence of well-spacing studies, are factors favoring individual units for pumping. Finally, as a result of improved drilling and production practice with more wells completed by rotary and cable machines, with longer extension of well flowing life and more field engineering in general, the industry is well prepared to consider fitting the field engine to more definite requirements.

Portable Machines Developed

While it has been the practice for a number of years to service pumping wells that operate from a central power by means of a portable power hoisting machine geared to a gasoline or distillate engine for pulling sucker rods, tubing and for cleaning out wells, it is but recently that portable machines have been developed that can service any depth of pumping well more economically than by using the pumping engine through a reverse power take-off to drive a bull wheel or calf wheel permanently set as to complement the production machinery assembly.

It has taken a long time to realize that the modernization of permanent well machinery for its principal function as an efficient oil lifting mechanism of some nature can be done without the excessive expense for machinery of the size required to do the occasional jobs of well servicing. While a specialized type of engine has long been furnished, and will always be in demand to some extent, its need will be more and more restricted, as will the permanent rig pumping machine itself. Hence it is realized how plans of the future will bring to fruition the accomplishment of that fundamental requirement of any prime mover, which we have long ignored, to operate at correct speeds to obtain economical results. Such systems will largely obviate any need of rotational reversing devices for permanent power take-off, and we may reduce accordingly the highly diversified power requirements.

Compact pumping units with double or triple speed reduction from prime mover to rig crank shaft are forcing us to plan our power requirements wisely. One can always afford to consider at length the all important question of what kind of a prime mover is most suitable for each condition.

Engines Classified to Usage

It will not suffice to say that we have 10 or more selective styles of gas and oil engines for field usage, classified according to principle of design and fuel ignition. Nor is it important that we can say there are 30 or more characterized types according to operating speeds and fuel ignition. There may be many more which have not come to the industry's attention. Generally, we may divide field engines broadly into two groups based upon proposed use, namely, those for dual operation purposes, and those for a single purpose. Dual requirements will continue to some extent and, as explained before, imply a usage not only for pumping a well but also for various well servicing requirements.

Engines for dual purposes require a wide range of power and speed. The engine must be connected to drive the crank unit of the pump machine with a transmission ratio that will not sacrifice one class of operation at the expense of another. An average engine speed for pumping is planned while keeping in mind a suitably rapid speed and power demand for hoisting purposes. Frequently the attainment of both objects is not wholly satisfactory. Dual purpose engine requirements have best been met in the past by use of the two-stroke cycle design in the horizontal type as against the four-stroke cycle.

Single purpose engines can be smaller and may employ most economically the four-cycle principle. Single cylinder two-cycle engines, however, are generally used for both single and dual purposes due to greater simplicity in design and a more uniform flow of power at slow speeds. Their popularity is perhaps greatest in the Mid-Continent.

The dual power requirements of individual prime movers met by the single cylinder, two-cycle horizontal type gas and oil engines, and likewise by steam engines, could not be so happily satisfied with electric motors such as the two-speed, dual horsepower, slip ring type with variable control because of high resultant power cost, low efficiency and low power factor. This resulted in an immediate substitution with high torque squirrel cage motors of constant speed and with multiple cylinder gasoline engines. Then began a consequent delving into ways and means to equip wells to make this substitution practical. Better and better grew the portable type of well servicing power hoists, heretofore a product of small economic magnitude for manufacturing. Likewise came the "stripped down" permanent pumping units. This is mentioned because here was a development of considerable magnitude.

We now find that engines for the single purpose of pumping are more and more our sole consideration for each well requirement. Only proration of well production that necessitates taking "potentials" remains to justify installing engines of a fairly high range of speed and power where other types would be less expensive.

Engines Classified to Speed

Broadly speaking, all internal combustion engines may be grouped into two classes, viz., slow speed engines which work at 140 to 240 r.p.m., and high speed engines which work at speeds from 400 to 1,500 r.p.m. (mostly 400 to 900).

Selection is determined by deciding first of all whether or not we choose to use a single speed reduction in the connection to the driven crank unit of the rig machine or to employ a double or triple reduction. The writer contributed to the Petroleum Division of this society in the spring meeting of 1927 pertinent information relative to the need for general adoption of double and triple reduction rig machinery. Now we witness this general adoption by use of the driven pulley on a shaft intermediate the driven crankshaft and the engine. This shaft may be used for a pinion gear, sprocket or belt take-off to the final driven shaft. We may, therefore, assume that every future pumping rig machine will be modern in respect to the double reduction driving connection.

Slow Speed Engines

Slow speed engines are exemplified by the present oil field types. They are horizontal and, except for high power demands, have but one cylinder. They are made to run on gas, Diesel and/or crude oil fuel. All new types are convertible at a minimum of expense from one fuel to another. The convertible types are practically all two-cycle.

Perhaps 75 per cent of all engines used in the field today are the single cylinder horizontal type, either two or four-cycle. Such engines are too well known to be considered here at length mechanically. While two-cycle types have practically replaced a former demand for four-cycle horizontal engines in the Mid-Continent, the four-stroke cycle idea is not out of the picture. Recent development on the Continent has resulted in excellent tests and service reports on an improved single cylinder four-cycle engine of high speed and light weight, claimed to operate a steady load at 500 to 600 r.p.m. and capable of intermittent service at higher speeds.

The main improvements in oil field engines appear to consist in better crank shaft-flywheel balancing, use of alloy cast iron cylinder and pistons honed to greater accuracy, improved heads, valves, bearings and lubricating systems. All vital working parts are now fully enclosed. Higher sustained operating pressures are the rule and surprising results with compression ignition of fuel are obtained. While it is known that pressure lubrication to journal, crank pin and crosshead pin bearings can be successfully used to reduce wear at high speeds, general application has not appeared. Roller bearings are quite successful for journals.

In the compression injection oil engines remarkable results are obtained with the use of the Bosch fuel injection equipment, and, with certain modifications, its general adoption is increasing the popularity of these engines beyond that ever before attained. It has become possible to operate the latest designs of oil field engines on crude oil of 40-50 degree A.P.I. and with high sulphur content. Over-zealous application of compression ignition engines to operate on such crude fuel leads some of us to believe it will result later in headaches, similar to what has followed too often the attempts to operate higher speed vertical engines of the compression injection type on crude. Time will not permit a discussion of the relative merits of crude oil and specification Diesel oil, obtainable at low prices. But, a calculation will show that in many cases oil operators are kidding themselves into believing there is economy in using crude obtained directly from the wells. The actual cost may be higher in the long run. It is recognized that combustion with crude is incomplete and more fuel is required, as much as 50 per cent. This results in plugging of transfer ports, dirt in nozzles, needle abrasion, rapid pump plunger wear and a higher down time and labor expense for maintenance than with clean, refined fuel.

The installation of horizontal power units complete with only a cut-off clutch in the driving connection to a two-speed pumping rig machine and including water cooling and fuel connections will vary between $75 and $80 per operable connected horsepower suitable for long life and economy if gas fuel is used. Compression ignition oil engines will cost installed in a similar manner $85 to $100 per horsepower for the most selectable size for low cost well operation. These figures include also the cost of concrete and housing but not the driven machinery. Frequently the cost runs much higher, being dependent upon the type of driven machinery selected.

Maintenance cost will vary, dependent upon work performed, character of cooling water, fuel, lubricant and general features of design. Unfortunately for this class of engines, replacement parts are a bit expensive.

High Speed Engines

Double reduction pumping machines offer an excellent opportunity for more compact, higher speed engines such as multicylinder vertical units. This type of power unit may be easily transported completely assembled with enclosed cooling system, starter, clutch, water pump, fuel regulator and outboard bearing, if necessary. The types most commonly known employ the four-stroke cycle principle, although we may expect considerable

*Before Oil and Gas Power meeting of the A.S.M.E., Tulsa.

popularity with the two-stroke cycle using half as many cylinders. Two-cylinder, two-cycle engines will compete strongly with four-cylinder, four-cycle. How extensively is yet to be witnessed.

Now the question arises as to the practicability of high speed engines, and how high the appropriate operating speed. On the settlement of this question to a large extent depends their success or failure in competition with the time-honored, slow duty, horizontal engines, made especially for oil field application. Viewpoints may differ a bit, but it is reasonable to suppose that if, for instance, a four-cylinder, four-stroke cycle vertical engine, of proven worth in other industries, can be selected of the same horsepower range as we require of the single cylinder engine, on the same fuel, with comparable piston speeds, lubrication efficiency, bearing areas, valve action and fuel injection features, of likely much higher precision in dynamic balancing and perfection of working parts, that there should be no risk whatsoever in the attainment of equal longevity under the same working load.

Operating History

Comparable longevity may be a bit doubtful, but the factor of obsolescence is not certain to cause any higher rate of depreciation for the heavy duty multicylinder as compared with the horizontal. We may find that operating histories of these two types covering parallel working conditions will reveal that the modern, "stripped" pumping mechanism requires no highly special design of engine for oil field usage. It is true that this is not according to what has already occurred. What has occurred has been due to the allurement of low prices for automotive type engines, arranged and sold as power units, of low torque, high speed, cheap design and construction. Very familiar are the advertised tests and performance charts to those of us who must decide. Yet we feel there should be more field studies made by the designers of these engines before performance can be remotely estimated. Hence the oil industry, with shying skepticism, will not readily attempt widespread field application of high speed engines without more results of assiduous observation and planning.

A little walking before running is the attitude of the field engineers. So it now appears that for individual well pumping we should start applying the high speed engine to continuous duty with the piston speed travel of 600-700 feet per minute. We will observe manifold temperatures, cooling systems and the functioning of automatic devices which are necessary. We will know how to have lubricating systems that function for long periods, using not too special a grade of oil. It is already known that cooling water circulating system can generally be much improved, and no foundryman's inspection prior to assembly will be sufficient. Field water is generally bad. Finally, it is likely that all high speed engines will have to be equipped with automatic cut-offs for maximum temperature and minimum oil pressure limits to safeguard the installation.

From a viewpoint of comparable investment expense for installation in place ready to run, it is interesting to discover that there is practically no difference in final cost for the full Diesel, self-starting vertical four-cycle engines of the sizes required for pumping any present depth wells over the cost of lower compression crude oil burning, slow speed engines, provided piston speeds and reserve horsepower are practically the same. Spark ignition engines, however, show up differently, and we find it possible to install "production" vertical engines at a saving of 25 to 30 per cent less than single cylinder horizontals. Any attempts to save more by selecting automotive types of higher speed point to a grave possibility of high maintenance and frequent replacements.

Maximum torque characteristics of such engines should be from 300 foot-pounds of 600 or more compared to a range from 800 to 1,600 for slow speed, single cylinder engines. However, it may be found, as with electric motors, that for single duty requirements even lower torques are sufficient for many individual well units.

Reduction gear units and practically all transmissions used in pumping machinery will function best where there is connected a smooth flow of power. Electrified units have demonstrated this repeatedly. Low speed, single cylinder engines, when not absolutely necessary for other uses than pumping, would occupy a secondary place for this reason except for their long endurance records. With present oil field engines having high speed bearings and many parts not easy to repair in the field, contrary to former years. it is but another step to consider that to obtain uniform power and a widely governed speed range we should adopt the multicylinder engine.

Operation and maintenance cannot at first be expected to reflect any particular improvement except in the degree to which field supervision is improved. However, it is believed that a four-cycle, compression ignition, multicylinder engine running on specified Diesel oil will outperform in thermal efficiency the usual single cylinder, two-cycle engine having the same injection principle, on either crude or specified fuel. Gas fuel consumption should be considerably less in operating a multicylinder, four-stroke cycle engine. It might also be of interest to keep in mind that replacement parts cost much less for high speed engines of the class considered than for oil field slow speed engines.

Water Circulating and Cooling Systems

A word or two about enclosed cooling systems is worth some consideration at this juncture. With high speed engines it would be folly to do without enclosed circulating systems. It is admitted to be much superior for any type of internal combustion engine to the open tank, open evaporating system, so long used for oil field engines. Certainly the user needs to look into the high cost which results from deposition within the water jackets of highly concentrated mineral salts from open concentrating tanks. The performance of oil field engines would be measurably improved if the open cooling system could be superseded by something better.

Fuel Factor Affecting Selection

We use gas engines because we wish to make use of free or cheap fuel for power. It is the custom to run engines on crude oil if gas is not available. It will be not unlikely to see more engines installed to run on distillates or on Diesel fuel. For these conditions, there are many engines. The slow speed types will serve, with some added expense for change-over parts, to run on gas, crude oil or Diesel oil. Spark injection, vertical high speed units will run on gas, gasoline, crude or Diesel oil of perhaps the widest range, particularly with the Hesselman heads and fuel injection. The compression ignition or Diesel high speed units are not so generally convertible to gas engines. It is about as cheap to move out the Diesel when it is to be replaced with a high speed gas engine, especially since changes from one fuel to another are rather infrequent and the installation and transport costs almost negligible. The economic factor of available fuel appears to be just as advantageous with high speed as with low speed engines.

Therefore it behooves the users and the makers of engines contemplated for service of individual well pumping to exchange viewpoints and to watch economic trends in well drilling, producing and equipment practice. The writer has purposely omitted much that can be said with the sole desire of pointing out how new plans of mechanizing individual well units for good operation introduce greater opportunities for all types of internal combustion engines.

Conclusions

1. High speed oil and gas engines are becoming more and more applicable for individual well pumping units.

2. Single purpose pumping units offer the best opportunity to secure lowest power cost.

3. Engines of either high or low speed have to be of the highest order in design and workmanship to withstand field usage for pumping.

Operating Experience in Use of High Speed Diesels on Pipe Lines

By J. B. HARSHMAN
Stanolind Pipe Line Co.*

During the past two years some high speed Diesel engines have been tried out in the pipe line industry. It was believed at first that this type of unit would find extensive use in field gathering stations on account of its low weight, small first cost, portability, and a wide range of speed variation to meet varying capacities. This type of unit has met these requirements; however, it has been found that it has the disadvantage of requiring a special fuel oil for good operation. It has been learned that the present high speed engine does not operate satisfactorily on the wide variety of pipe line crude oils, which one will find in pipe line gathering systems.

The writer's experience covers the operation of two 300-horsepower, 600 to 750 r.p.m., solid injection, four cycle, Diesel engines, having a weight of 11,500 pounds. One of the engines has operated a total of 7,600 hours, using a composite pipe line crude from the East Texas Field. The engine has performed satisfactorily except that the combustion has not been complete. The exhaust has been smoky and there has been an excessive cumulation of unburned products. The original liners and aluminum pistons are still in the engine.

The second unit was used almost continuously for about a year in western Kansas. An effort was made to operate the engine on western Kansas crude oil, but after several months it was necessary to replace the aluminum pistons and provide a special refinery fuel oil. The western Kansas crude oil is similar to other Mid-Continent crude oils except that it contains hydrogen sulphide gas and some of the oils have a higher percentage of sulphur. Serious operating problems started with the first use of the western Kansas crude oil and increased to such an extent that Diesel engine power was replaced with electrical power. The corrosion of the fuel injection system was the first trouble experienced, and as a consequence the efficiency of the combustion system was bad and became worse. The heat of combustion increased and finally an unbalanced operating condition resulted in mechanical problems. The excessive heat and the unburned products from the fuel destroyed the cylinder and piston ring lubrication, causing excessive wear on piston rings, ring grooves, and cylinder walls. The piston ring grooves wore so rapidly that large portions of the area between the rings would break away after a few weeks' operation, permitting the unsupported piston ring to break. These pieces worked their way upward by constant wear until a large opening was eroded through the surface of the aluminum piston from the ring grooves to the crown of the piston.

The replacement of aluminum pistons and parts for the injection system became frequent and costly. The manufacturers of both engine and injection system recommended that the user buy the right fuel for the engine and no trouble would be experienced.

It is needless to say that a Diesel engine which requires a special grade of fuel oil is not adapted for pipe line gathering stations, which are generally located in isolated places.

The manufacturers of Diesel engines should take cognizance of the fact that a great amount of oil of the sour nature will be produced in future years from such areas as West Kansas and West Texas where reserves are known to exist and possibly other western states and the use of the high speed Diesel engines in pipe line service in these regions may depend on the adaptation of the engine to the character of crude oil which is available for fuel.

The injection and combustion systems on lower speed Diesel engines, both air and solid injection, have operated on the sour crude with little trouble. The solid injection systems operating at lower maximum pressures give the least trouble; this condition is due to the fact that certain alloys can be used to resist the corrosive effects of the hydrogen sulphide gas. Such alloys can not be used in the later types of high pressure injection systems since they do not respond to heat treatment and hardening to a sufficient degree to permit their use where a closely lapped fit is required for high pressure operation.

The solution of the problem rests with the manufacturers of engines and injection systems. Their efforts should be directed to the development of materials that will resist the elements causing this corrosion and improvement of the combustion chambers to permit the burning of heavier fuels at high speeds.

Forces encountered in engines above certain speeds necessitate the use of light weight pistons; thus the aluminum piston has been used in place of cast iron. Aluminum, which has the advantage of light weight and high heat conductivity does not possess nor have the property of withstanding the higher temperatures encountered in Diesel engine service. Exhaust temperatures in engines of this type often run over 700° F., and under certain conditions much higher. Aluminum begins to soften at these temperatures and frequent piston failures are the result. The development of a material with the heat resisting properties of cast iron and the light weight of aluminum for high speed engine pistons would be desirable.

Other features which should receive additional consideration in the design of high speed Diesel engines are:

1. Accessability.
2. Simplicity.
3. Improved combustion.
4. Improved cylinder liner-materials to reduce wear.
5. Minimizing noise.

*Before Oil and Gas Power Meeting of the A.S.M.E., Tulsa.

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Boulder Dam will add 1,800,000 horsepower to America's electrical generating capacity.
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NINETEEN THIRTY-FIVE will be a great year. Boulder Dam will change the Colorado River from a wasteful and destructive force into a source of 1,800,000 horsepower of beneficent electrical energy. This great engineering achievement, containing more concrete than all the other dams in this country combined, would alone make 1935 a year to be remembered in the history of American engineering. But also in the same year—over three million new automobiles will be manufactured, with a total capacity of over 250,000,000 horsepower.

And more than 35,000,000 horsepower of this total will be contributed by advances in engine design made possible by the improved motor fuel available today. With the gasoline of 10 years ago, these millions of potential horsepower were wasted . . . as the potential power of the Colorado River was wasted for generations. The average brake mean effective pressure of American automobiles has increased 40% in ten years. Each cubic inch of engine displacement now yields 70% more power than it did in 1925.

The *additional* power of 1935 cars due to improved fuels alone is not only much greater than the capacity of Boulder Dam; it is greater than the total water power capacity of the country. Thirty-five million additional horsepower added to 1935 cars because oil and automotive engineers worked together to squeeze more power out of each drop of gasoline! That, too, is a rare achievement.

The Ethyl Gasoline Corporation is proud that its research facilities have played a part in this cooperative progress. It is our hope that we may also cooperate in the progress that is certain to come in the next ten years. And for this purpose we offer our services to oil and automotive companies in whatever ways they may prove valuable, whether or not the problems are directly connected with the anti knock quality of gasoline. We invite you to call upon us.

Ethyl Gasoline Corporation, Chrysler Building, New York City.

Central Mechanical Power Old in Principle Is Modern in Design

By AUSTIN ALLEN
Phillips Petroleum Co., Bartlesville, Okla.*

The other papers of this symposium deal mainly with new types of surface pumping equipment. The mechanical power set-up is one of the oldest means of producing a well; however, considerable study has been given this subject during the last few years in order to improve the machinery, the method of installation and the general application of the power, rod-line and pumping jack principle.

At the present time central mechanical powers may be divided into two general classes. The conventional central lease power embodying the use of a prime mover, suitable transmission, horizontal eccentrics or cranks, suitable rod-line disconnect device; rod lines and pumping jacks. Another type, probably equally as old and which has received more consideration recently is the back side crank arrangement in which a vertical eccentric or crank is used, with other connections similar to the power. These two types have different advantages depending upon such items as the size of the well, the local plan of proration, the present and estimated future price of oil, the location of the lease or wells in question with respect to the other leases or wells of the same producing district or company, the type formation from which the well is producing, and the general surface contours.

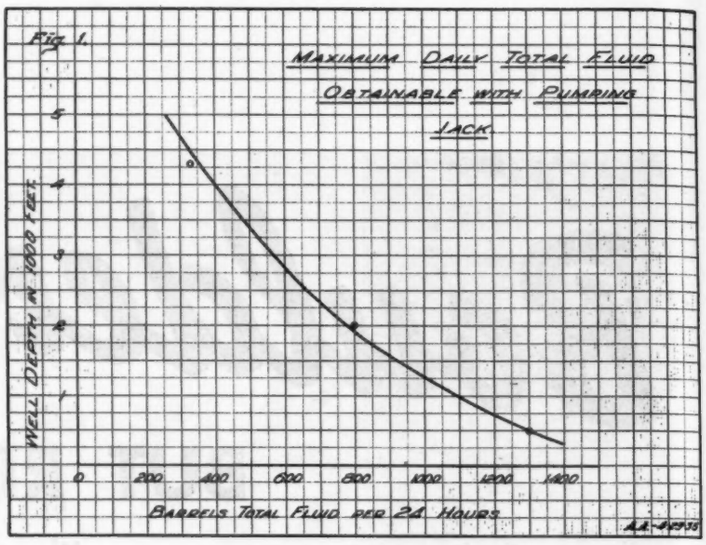
The conventional power has been used satisfactorily in wells up to 4,000 foot depth where the individual well production is not over 100 bbls. per day. Recent experiences with rod lines and jacks in the Seminole area indicate that a well of this depth producing 300 bbls. of fluid may be handled satisfactorily with a pumping jack and rod line. One such well is producing 330 bbls. total fluid at 4,300 feet with a 2 inch I.D. insert pump in 2½-inch tubing, a full string of three-fourths inch sucker rods, 49-inch polish rod stroke, 700 feet surface line of 1-inch upset rods with a 34-inch stroke and 18 strokes per minute. This is from a back side crank setting; however, the number of strokes per minute and the length pull rod stroke is well within the range of the central power.

Pull Rod Breakage

When this well was being pumped with a 24-inch rod line stroke and a 35-inch polished rod stroke the maximum rod-line tension was 20,000 pounds. The minimum tension was 6,000 pounds. This was at a speed of 21 strokes per minute. From this measurement it is estimated that the present rod-line load is 24,000 pounds. This installation has been running for eight months without a rod-line break. Other rod-lines for which the same type, size and make of pull rods were used but where the maximum load ranged from 8,000 to 14,000 pounds and the minimum load ran around 2,000 pounds failed frequently. One-inch rod lines in the Seminole area have given very little trouble. This condition indicates that pull rod breakage is not proportional to the load under which they operate but rather is proportional to the amount of whipping to which they are subjected. From the above it may be forecasted that 1-inch pull rods will successfully handle the above well with a 44-inch pull rod stroke, 18 strokes per minute and a jack multiplication ratio of 1.44. This condition would give a polished rod stroke of 63 inches. The present apparent pump eficiency should be increased, so the assumption of an 80 per cent apparent efficiency for the longer stroke is conservative provided of course that the fluid is available. From the above it is estimated that the maximum fluid production that could be obtained with a pumping jack from a 4,300 foot well is 430 bbls. per day.

It has been brought out above that the relation between the maximum and minimum pull rod load is important from a pull rod breakage standpoint. It is also important from the standpoint of actual pull rod stroke at the jack. We have observed a case where the stroke of the pull rods was reduced 50 per cent throughout their length when too large a pump was used, and when the pump size was reduced 50 per cent the actual rod line stroke at the jack was materially increased. The following tabulation portrays this condition:

Size pump bore	3.75"	2 75"
Depth pump set	600'	1,000'
Power stroke per min.	16.5	16.5
Length surface rod line	3.300'	3.300'
Length power eccentric stroke	24"	24"
Length rod line stroke at jack	6"-14"	36"-46"
Length polished rod stroke	24"	62"-80"
Total fluid production B/D	....	800-1100



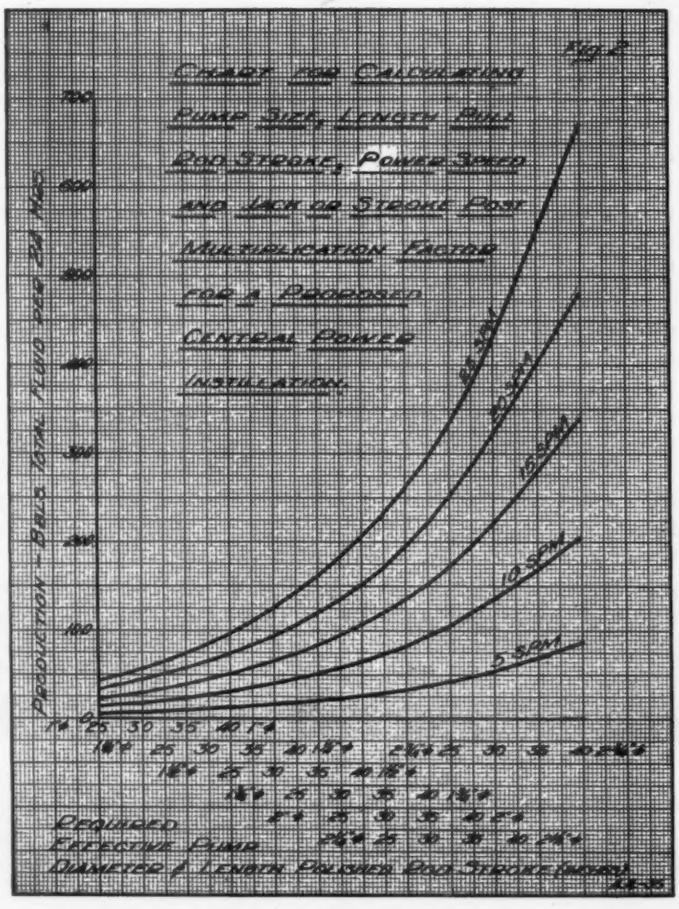


Fig. 2
Chart for Calculating Pump Size, Length Pull Rod Stroke, Power Speed and Jack or Stroke Post Multiplication Factor for a Proposed Central Power Installation.
Production - Bbls. Total Fluid per 24 Hrs.
Required Effective Pump Diameter & Length Polished Rod Stroke (Inches)

Although the above is an extreme example of this effect of load relationship to rod-line harmonics, the condition is important for satisfactorily pumping large volumes of fluid or deep wells with a pumping jack.

Figure 1 shows an estimate of the maximum daily fluid production that it is advisable to seek to obtain with a pumping jack.

The amount of down time for a well pumped by a standard rig, ranges from 10 to 30 per cent and considerable of this down time is caused by shock loads imposed on surface and sub-surface equipment because of engine impulses or other shocks generated by the transmission equipment. With a rod-line pumping jack installation most of these impacts are absorbed by the rod-line and it has been observed that the down time is reduced to from 5 to 15 per cent. This consideration offsets somewhat the inability to pump as much fluid with a jack as with a standard rig or pumping unit. This reduction in down time is also indicative of lower maintenance costs.

Powers and Portable Units

In some flush areas leases have been equipped with central powers even though several of the wells could not be produced to capacity with the pumping jack. In some of these cases a portable pumping unit is available and moved to the large wells for potential test or these wells are equipped with units until such time that they have declined sufficiently to be satisfactorily handled by rod-line and jack. In this way the investment advantages of the central power are gained without being handicapped as to production or potential test.

It is often not desirable to put in as large a power as would be required to pump the lease during the early stages of flush production. In this case individual pumping units can be used to produce some of the wells during this period. These units, should be installed on wood timbers with suitable anchors or hold downs so that they may be removed at an appropriate time and the wells hooked on the smaller size central power with a minimum of change-over expense. In a case such as this it might be desirable to have a pumping unit designed so that the prime mover and transmission of same could be removed and a down bar fastened to the beam making a conventional underpull pumping jack out of it. This pumping unit could be set in line with the power so that the rod-line could be run directly from the power to the well without swings, etc. In other areas where the proration is worked out so that potential tests are not necessary a central power is often the desirable type of surface equipment. In using a machine of limited capacity, such as a pumping jack, to produce a well, the

*Before Oil and Gas Power meeting of the A. S. M. E., Tulsa, May 8-11.

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differential between the value of oil and the lifting cost per barrel of oil, is a considerable item.

As the value of a barrel of crude increases the failure to produce all the oil available becomes more costly. As the central lease power is the least flexible of the various types of surface pumping equipment it is more likely that certain wells on a given lease will not be produced to their best advantage if the central power is used. But as a central power properly installed will have the lowest lifting cost of any of the various types of pumping equipment it becomes a problem of choosing the amount of production that can be sacrificed in order to use the most cheaply operated lifting equipment. Figure 2 shows the variation in well production that a power may handle satisfactorily. It may be seen from this chart that the proper choice of power strokes per minute, length of stroke and effective pump size will enable the central power to cover a fairly wide range of well sizes. The use of rod line stroke multipliers will somewhat increase this range, and as mentioned above, the use of one or more pumping units will make the range inclusive of anything that might be encountered. If oil is selling at a low figure the margin between selling cost and lifting cost becomes small and in order to increase same it is desirable to use equipment that will give the lowest possible lifting cost. As the value of oil increases then the value of lost production becomes increasingly more important and it is desirable to cut lost production to a minimum sometimes with an increased lifting cost. This problem is different for practically every proposed installation, however it should be given due recognition before the large unsalvable investment is made in a lease central power.

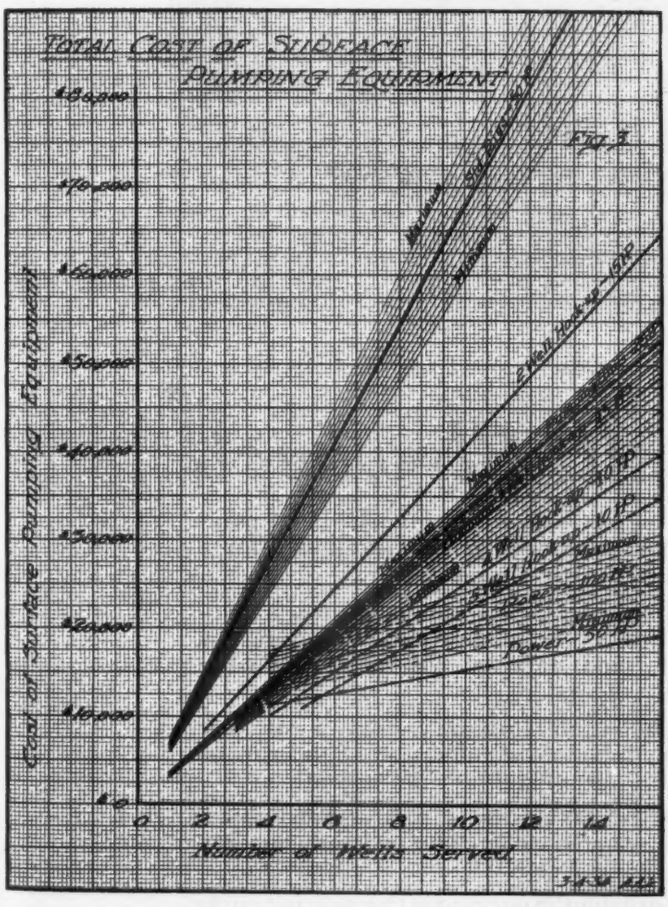
Lifting Costs

On of the major items of lifting cost is the transportation expense in moving men, tools and material from the district tool house or center of operations to the lease at which repairs are to be made. The type equipment that minimizes this cost is consequently more suitable for leases that are far from the center of operations. It is, therefore, often possible that the amount of lost production caused by down time is less with the use of a mechanical power because of the reduced maintenance necessary thereto, and the ability of the pumper to perform most of the maintenance jobs that come up. The now common use of improved type portable tubing and rod servicing trucks and the economies incident to the use thereof have entirely overcome the previous disadvantage of a pumping jack installation in that separate servicing facilities were necessary.

Rod Line Patterns

Leases with uniform well patterns in comparatively level country are naturally more adaptable to rod line and jack operations than those where the well pattern is erratic or where ravines, streams, hills and other ground irregularities exist. However, powers have been installed and operated satisfactorily where the terrestial conditions are very irregular. The use of modern type hold-ups, hold-downs, swings, and the running of rod lines on suitable catenary curves have made it possible to install a power almost anywhere. Graphic analysis of estimated well loads and estimated pumping time cycles enable a producer to make a satisfactory installation even though the well size and location on the lease or leases is very irregular. However, irregular well locations, several leases served by the same power in combination with proration is a rather difficult problem and can only be solved by the use of oversize machinery and due recognition of the value of load analysis on the part of the operator in order to keep the machine properly balanced.

The investment cost per horsepower per well of central mechanical powers, back side crank hook-ups, or individual pumping units is fairly uniform excepting that it varies with the number of wells being served. This is brought out in Figure 3. Figure 3 is based on costs to the average producing company that has operated in the Mid-Continent area for some time and has the normal type equipment being salvaged from depleted leases. This equipment consists mainly of slow speed gas engines, clutches, countershafts, rig irons, powers, jacks, etc. It shows that where the wells are within the capacity of a pumping jack from 8 to 10 wells are necessary before it is advisable to install a lease central power. For a lease of less than eight wells the back side crank three or four well hook-up is more desirable from an investment standpoint. However, in these two type installations, the power and back side cranks the unrecoverable investment cost (see Figure 4) is higher than it is for the individual pumping units. In these curves it was assumed that a slow speed gas engine would be used as prime mover for the powers and multi-cylinder engines for the pumping units.



Salvage Items

As this unrecoverable investment cost becomes increasingly important the shorter the expected economic life of a lease the mechanical power is more desirable where a long lease life is expected. In cases where it is possible that the wells in question will make considerable quantities of water it is not desirable to install a lease central power unless it has been proved that satisfactory water shut-off jobs can be accomplished or that the pumping jacks can handle economically sufficient salt water to make lease operation profitable. The large unrecoverable investment incident to a central power usually makes some other form of surface pumping equipment desirable in such cases.

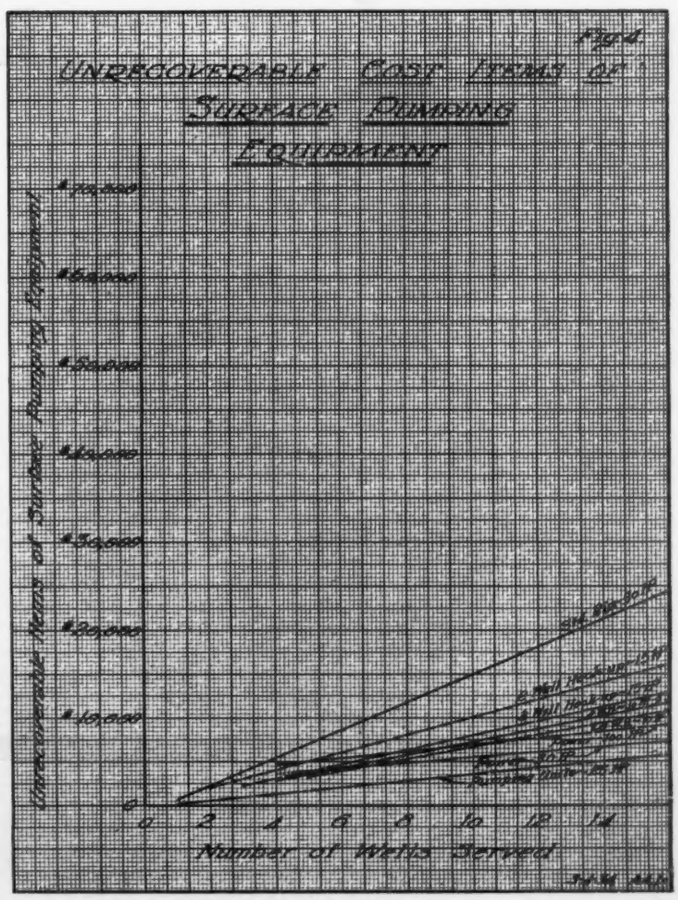
Maintenance Cost

The maintenance cost of a central power will vary materially with the size and depth of the well being produced. The direct lifting cost will range from $10 per well per month to over $100 per well per month, depending upon the surface and sub-surface conditions encountered. The items of lifting cost of a central power installation in a deep area or one in which large volumes of fluid are produced are roughly one-third surface equipment maintenance, one-third lease equipment maintenance which includes the pumpers' time, and one-third sub-surface equipment maintenance. It has been observed that in most cases where standard wood rigs have been replaced by central mechanical power or by steel rigs with additional wells on back side cranks that the lease lifting cost has been reduced from 30 to 40 per cent, and that this reduction was equally distributed over the above three items mentioned.

Mechanical Efficiency

The mechanical efficiency of a central power from the prime mover output to the knock-off posts will vary from 50 to 70 per cent depending mainly upon the relationship of the connected load to the size load for which the machine was designed. This efficiency also varies, but to a much smaller degree, with the amount of refinements incorporated in the machine. Rod-line friction loss will vary from 0.1 to 1.5 horsepower per 1,000 feet of rod-line depending upon the number of hold-ups, hold-downs, swings, etc. in the line and upon the size of the line itself. The use of catenary curves will materially reduce this rod-line friction. The mechanical efficiency of pumping jacks will range from 60 to 90 per cent mainly upon the jack multiplication factor, and partly on the design of the jack itself.

In conclusion it might be said that the central mechanical power is most suitable for stripper areas where the oil production per well is small and consequently it is desirable to keep lifting cost at a minimum. The three or four well back side crank hook-up is most suitable for similar areas where the individual well production is greater, or the wells are deeper, or there are fewer wells on the lease.



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Truck Mounted Portable Rotary Units Perform Important Part in Wildcatting

BY J. A. NILES
Mechanical Engineer, Research and Development Department, Stanolind Oil & Gas Co.*

It was not so long ago that an oil operator's chief object was to drill the largest possible diameter hole in the shortest possible time, to the producing formation, and to produce from the completed well the greatest possible amount of oil per day. During the past few years, proration in oil fields has made these aims both unnecessary and undesirable for the operator. In many fields the amount of oil to be taken from a well is determined by its ability to flow through tubing, thereby making a large diameter hole both unnecessary and costly.

Recognizing the change in drilling requirements, Stanolind Oil & Gas Co., through its research and development engineers, with the co-operation of the Franks Manufacturing Co., has had designed and built, a portable, truck mounted rotary drilling unit, for the completion of wells with 6-inch casing up to a depth of 4,000 feet. The test period of this equipment has proven that, within its size and depth limits, it is able to make hole as fast as much bulkier equipment. Moving and rigging up time has been reduced to a minimum, as low as but 20 per cent of the time ordinarily required. It is expected that it will also prove very efficient in deepening and rotary cleanout work.

Light Weight Essential

In designing the machine, several factors had to be kept in mind. The various parts had to be as light in weight as possible, and at the same time have ample strength for the job. Space limitations demanded compactness in the operating elements and considerable thought in arranging them, since, in addition to the length limitation imposed by the truck bed, it was desired to keep a maximum width of 8 feet, to conform with highway regulations. It is necessary to secure a special weight permit while on the highway, the total weight of the unit being approximately 42,000 pounds.

The drilling machinery is permanently mounted on a Four Wheel Drive 10-ton capacity truck, having six driving wheels and four dead-axle wheels. It consists of independent motor, rotary drawworks, mud pump, electric lighting generator, and heavy duty, gear transmission box.

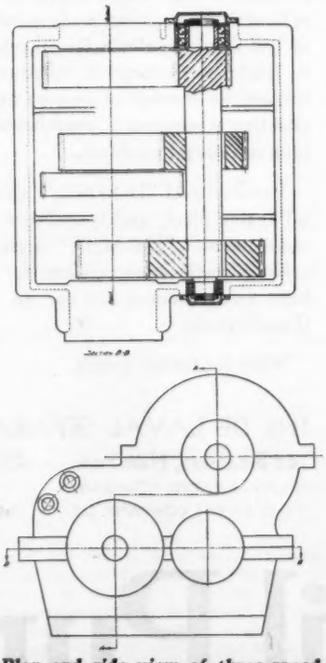
The truck motor and independent motor are identical types of Waukesha engines, developing a maximum of 125 horsepower each at 1,800 r.p.m. By means of a special carburetor, they are convertible from gasoline to natural gas operation, with little difficulty. They are provided with air cleaners, and spark-proof ignition.

The drawworks is a Franks winch, specially adapted for the portable drilling unit. This winch has two noteworthy features. The first is that the drum shaft is stationary, being provided with a large capacity Hyatt roller bearing at each end, upon which the drum rotates, thus allowing the shaft to be rigidly attached to the drawworks framework and act as one of the main reinforcing members, eliminating excessive superstructure to accomplish this purpose. The second is that the final drive to the drum is through a large capacity friction clutch, the advantages of which will be described later.

An A-frame, built up of boxed structural steel channels, electrically welded, supports the hoisting drum and the cathead shaft. The cathead shaft is provided with a Hill & Foster automatic cathead at one end, a standard cathead at the other, and a ratholing sprocket. In drilling operations, a heavy structural H-beam head board rests across the top of the A-frame structure, and is tied at the ends to the derrick corners by means of 1½-inch turnbuckle rods. Rollers on the head board and A-frame prevent the catline from dragging on these members.

The mud pump is a 7¼x10 Gardner-Denver. It is equipped with herringbone reduction gears and Hyatt roller bearings, with all working parts totally enclosed. It is located so that ample space is provided between the pump and the rear of the driver's cab, for pulling liners and pistons. The question may arise as to whether or not sufficient capacity can be obtained from a single pump. It is true that unusual situations may come up in which two pumps are necessary, in which case the extra pump may be driven by the present equipment, although it is not regularly provided; but this is the exception rather than the rule. In all ordinary cases the extra pump would be used only as a standby. As a further guarantee against insufficient pump capacity, a special 3½-inch full hole drill pipe is used. The internal diameter of the pipe is the same throughout its length, while the external diameter is larger at the tool joints, to allow for the threads. This differs from the usual construction, in which the internal diameter is contracted at the joints. In the manufacture of this joint, a sleeve is shrink-fitted and welded around the outside of the ends of the pipe. A minimum amount of resistance to the flow of the mud is offered by these joints.

Mounted portable drilling unit



Plan and side view of three-speed forward high speed reverse portable rotary rig gear box

The electric lighting system is a 1½-kilowatt General Electric exciter-generator unit. It is specially designed with characteristics such that the output is practically constant over a range of speed from 600 to 3,600 r.p.m. Small variations in voltage are controlled by means of a rheostat.

The gear box is of special design, and will be described in detail later.

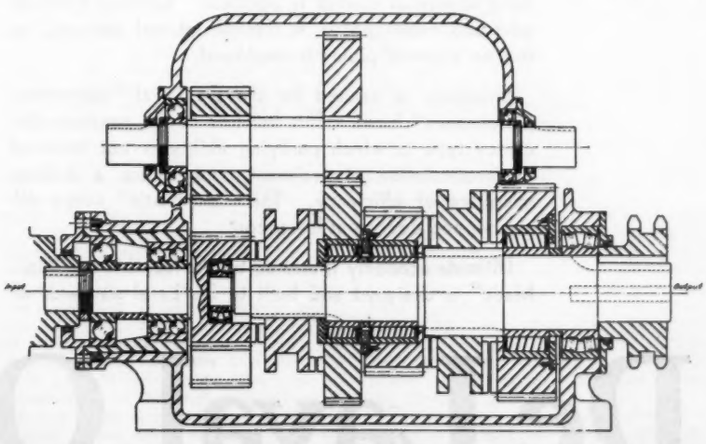
All controls are grouped at the rear of the truck, where they will be in a convenient position for the driller. They consist of drawworks clutch lever and brake lever, motor synchronizing clutch lever, rotary table drive sprocket clutch lever, mud pump clutch lever, gear shift lever, cathead shaft clutch lever, telegraph wheel fuel control, and rheostat control. An instrument board contains voltmeter, ammeter, rheostat, and two tachometers, one connected to each motor, which are used in synchronizing the motor speeds before compounding.

Both Engines Used

The power from the truck engine is utilized by means of a chain driven power takeoff box, located between the truck transmission and the truck power takeoff box, from which the wheels are driven. From this a shaft extends between the independent motor and the mud pump, which are placed longitudinally on opposite sides of the truck bed, to the rear of the truck. The electric generator is driven by a chain from this shaft. At the rear is another chain transfer case, identical in design to the one used as a power takeoff from the truck motor, from which a short shaft is connected through a Falk flexible coupling to a right angle helical ring gear and pinion drive. The output shaft of this right angle drive serves two purposes. On the outside is the rotary table driving sprocket, which is connected to the shaft by means of a cutoff coupling type friction plate clutch. On the inside it connects, through the motor synchronizing clutch, also of the plate friction type, to the input mainshaft of the gear box.

The independent motor is connected through a Falk flexible coupling to a right angle drive similar to the one by which the power from the truck motor is transmitted to the gear box. On the output shaft of the drive, between it and the gear box, is a chain sprocket which drives the cathead shaft, and is engaged by a jaw clutch. A chain type flexible coupling connects the shaft to the reserve countershaft of the gear box, which rotates in the same direction as the input mainshaft. All working parts in these right angle drives are those used by the International Harvester Co. in the rear ends of their heaviest commercial trucks. Through them, the shaft speed of the motors is reduced from 1,800 to 1,000 maximum r.p.m.

On the output side of the gear box, a sprocket on the main shaft drives the hoisting drum by means of a chain. The reverse countershaft is extended through a plate friction clutch to the mud pump



Sectional view of three speed forward high speed reverse portable rotary rig gear box

*Before Oil and Gas Power Meeting of the A.S.M.E., Tulsa, May 8-11.

De Laval "*Uni-Matic*" Oil Purifier

. . . . a complete self-contained lubricating or fuel oil purification plant for oil engine service

. . . . engineered and built to De Laval standards

As exhibited at Oil and Gas Power Meeting, Tulsa, Okla.

THE De Laval "Uni-Matic" Oil Purifier . . . convenient . . . efficient . . . economical . . . is the ultimate answer to the need of the oil engine plant for a complete unit to purify lubricating or fuel oil.

Convenience is assured by the design of the compact unit containing all equipment necessary to handle the oil. This includes centrifugal oil purifier, inlet and outlet pumps, centralized electrical control, temperature gauge, flow gauge, inspection windows, overflow indicator and sampling cocks. Built-in electrical heater with thermostatic or manual control is optional. Oil flow between inlet and outlet points is through internal passages, so that no exposed piping is employed.

Efficiency is assured by the De Laval "guaranteed performance" bowl. This bowl is of the constant efficiency type in which purifying ability is not lessened by accumulation of sediment, and carries a definite guarantee of efficiency. The "Uni-Matic" keeps oil cleaner and does so at lower cost.

Ultimate economy is assured by the fact that the "Uni-Matic" is designed and built to De Laval standards of quality, and to produce oil conforming to De Laval's high standard of clarity. Direct-connected motor drive through a simple friction clutch eliminates the use of belts. The self-lubricating system, made possible by the employment of ball bearings, eliminates oil cups and need for attention to lubrication except at infrequent intervals. In every respect the number of wearing parts and points at which attention is required is considerably less than with earlier type centrifugal machines.

The De Laval "Uni-Matic" is the oil purifier for today's oil engine plant, and is available in sizes to meet every requirement. "Uni-Matic" is also well adapted to most other oil purification services; for example, more than 50 have been ordered for use on U. S. Navy and Coast Guard vessels.

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De Laval Oil Purifiers

driving chain sprocket, which is supported by outboard bearings.

It is to be noted that, with the exception of the engine and pump frames, no cast iron is used, all parts being made from cast, forged, structural, or high speed alloy steel, and that, with the exception of the engine bearings, all bearings are enclosed, grease packed, or self-oiling, roller and ball bearings. All chains are of the high-speed roller type.

With regard to the design of individual parts, there are several interesting features. The power takeoff from the truck motor is of the split shaft type. The chain driving sprocket is mounted on the shaft from the truck transmission to the truck transfer case, in the rear. The shaft is split inside the power takeoff box, and the two ends of the shaft are splined and held in alignment by a pilot bearing. A splined sleeve slides on the shaft in such a manner that, when pushed to the rear, the ends of the shafts are securely locked together, and the power from the truck motor is transmitted to the truck transfer case, which in turn drives the wheels of the truck. A jaw clutch is provided on the front of this sleeve, so that when it is pushed forward, the front part of the split shaft is disengaged from the rear part, and the clutch engages the chain driving sprocket. The power from the truck motor is now transferred to the drilling apparatus. An idler, with the shaft mounted eccentrically in bushings, is employed to take up slack in the chain, and the whole is totally enclosed in a heavy steel case. Lubrication is taken care of automatically by drips.

Special Gear Box

The gear transmission box is of special design. No gear box on the market has been found large enough to operate satisfactorily for this type of service, and this has been a constant source of trouble in the past. The largest commercial gear box available is rated at 1,000 foot pounds, while the rotary gear box is designed for a maximum input load of 1,600 foot pounds at 1,000 r.p.m. All forward gears and pinions are 4-inch face herringbone gears, and the reverse gears are 2½-inch face spur gears. The herringbone gears run quietly, are more resistant to wear at high speeds than spur gears of equal dimensions, and eliminate the side thrust which would be occasioned by the use of helical gears. All gears and shafts are cut from high grade alloy steel, heat treated, and ball or roller bearings are used throughout. In the constant mesh design, such as is used in this gear box, the gears are always in mesh, but the main shaft driving gears rotate freely on roller bearings. Between two sets of gears is a clutch collar, which slides freely in either direction on a spline cut in the mainshaft. A dental type clutch on the side of the collar engages a similar clutch on the side of the corresponding gear, and thus, any desired gear may be coupled to the mainshaft. The clutch teeth are cut either in steps, or with the top at an angle, to insure easy engagement. The gear box case is of cast steel, ribbed for reinforcement, and is in three sections, which are bolted together. It is equipped with a special oil distributing arrangement.

The speed ratios that may be obtained are, in the forward speeds: High, 1:1; intermediate, 2:1; and low, 4.2:1. The high speed reverse has a ratio of 1:1, so that the traveling block may be lowered rapidly when there is no weight suspended from it. If a six-line block and tackle is used, the following hoisting capacities and speeds may be obtained: In high speed, 30,000 pounds, at 193 feet per minute; in intermediate speed, 60,000 pounds, at 96 feet per minute; and in low speed, 127,000 pounds, at 46 feet per minute. The weight of 4,000 feet of 3½-inch drill pipe is 53,000 pounds, so it is evident that there is ample hoisting capacity.

The gear box is really the heart of the portable rotary. In addition to its function as a speed changer, it eliminates a countershaft, which would otherwise be required to drive the cathead shaft and the mud pump, and it also serves as a means of synchronizing and compounding the output of the two engines. As previously mentioned, the power from the truck motor is applied to the input mainshaft of the gear box. The pinion on this shaft meshes with the driving pinion on the forward countershaft, which in turn meshes with the driving pinion on the reverse countershaft. The pinions on the input shaft and the reverse countershaft are of the same diameter, so that these shafts are required to operate at the same speed at all times. Since the power from the independent motor is applied to the reverse countershaft, all that is necessary to compound the two motors is to bring them to approximately the same speed as observed by the tachometers, and then throw in the synchronizing clutch. The motors are now held synchronized within the gear box itself, and may be operated as a single unit.

Flexible Drive

The drive is extremely flexible. The power from one motor is sufficient to drive the rotary table and the mud pump, so that while drilling only one motor need be running, and this can be either one, at will. When hoisting, the rotary table and mud pump are disconnected by means of the clutches, and both motors are compounded through the gear box.

The final drive to the hoisting drum is through a 32-inch outside diameter friction plate clutch, the nominal capacity of which is 24,000 pounds direct line pull without slipping. It was found to be difficult to obtain sufficient force with an engaging lever of reasonable dimensions to reach the maximum capacity of the clutch. A gear is attached to the end of the clutch lever, meshing with another gear, which in turn actuates the clutch engaging mechanism. The problem was solved by designing a set of eccentric gears to be applied at this point. With ordinary circular gears of equal radii, the clutch lever traveled through a total arc of 42 degrees, the initial 27 degrees of travel being required to bring the plates of the clutch into contact, and the final 15 degrees being necessary for complete engagement. By means of the eccentric gears, the clutch lever travels through the same total arc of 42 degrees, but 21 degrees of travel are required for the final engagement instead of the previous 15 degrees, thus obtaining a more delicate control of the clutch, and the leverage ratio of the gears continuously increases from the point of first engagement, until at the point of final engagement it is about 2 to 1, as compared with circular gears. The clutch collar travels through the same total linear distance in both cases, but for equal increments of travel of the clutch lever as the clutch is being engaged, the clutch collar travels a successively shorter distance, with a corresponding increase in pressure of contact, assuming a constant force applied at the end of the lever. This was accomplished by laying out the gears in the form of two symmetrical logarithmic spirals, the origin of axes being the pivot point of each gear. The gear teeth were constructed by using, in general, the method of Grant's odontograph for involute teeth, making allowance for the pitch line being a spiral instead of a circle. Patterns were then made from this construction, by means of which the gears were cast. This application has proved entirely successful for the purpose for which it was intended, that of obtaining the maximum capacity of the drum clutch.

Careful attention was given toward minimizing shock loads wherever possible. There are six friction clutches used on the truck, one at the truck motor, one at the independent motor, the synchronizing clutch, the rotary table drive sprocket clutch, the mud pump drive clutch, and the hoisting drum clutch. The only jaw clutches used are, one for the cathead shaft driving sprocket, the power takeoff clutch from the truck motor, and the generator clutch, and none of these will be engaged under load. An example will show the injurious effects of jaw clutches. Let us suppose, for instance, that the drill pipe has become frozen in the hole, and we are attempting to free it. The motors are speeded up and a clutch is suddenly engaged to connect them with the hoisting drum, but the pipe is completely frozen and will not move. What will be the effect with the jaw clutch, as compared with a friction clutch? The obvious answer is that a shaft, or part will be broken somewhere in the mechanism; but a few calculations will readily show the magnitude of this shock load. Let us assume that the driving shaft from the motor is 2 inches in diameter and 2 feet in length, with a shearing strength of 94,000 pounds per square inch. The torque required to break this shaft is, then, 147,000 inch-pounds. The angle of deformation, or the angle through which one end of the shaft can be rotated with respect to the other, before rupture occurs, is 11 degrees. Now then, suppose that the motor is rotating at 900 r.p.m. when the jaw clutch is engaged. The torque required to stop the motor, due to inertia of moving parts alone, in a rotative angle of 11 degrees, is 398,000 inch-pounds, well over twice the torque required to break the shaft, and of course the shaft will be broken. If the strength of the shaft is not to be exceeded, the motor must be stopped in an angle of not less than 29 degrees, which is easily accomplished by a friction clutch, the changes being that several complete revolutions of the motor would occur before the clutch is completely engaged, even if it were engaged suddenly.

Shaft Alignment

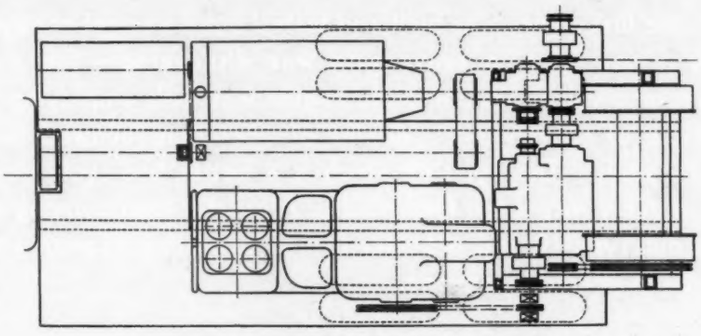
As previously stated, the capacity of the final drive clutch is 24,000 pounds direct pull. Since the breaking strength of 1-inch wire line is 30,000 pounds, this clutch prevents the possibility of pulling the line in two, as well as avoiding excessive shock to the driving mechanism when a load is applied.

As a further prevention of shock loads during operation, Falk flexible couplings are employed. In these units, the two coupling elements are connected by spring steel bars, resting in slots. The bars bend under load, thus forming an effective torsional shock absorbing device. In the familiar dynamometer cards of oil wells, it is known that momentary sharp peaks of load occur at times during the pumping cycle, and in the same manner they will occur in any mechanism. It is the purpose of the flexible couplings to reduce the intensity of these peak loads, as well as to take care of shaft misalignment.

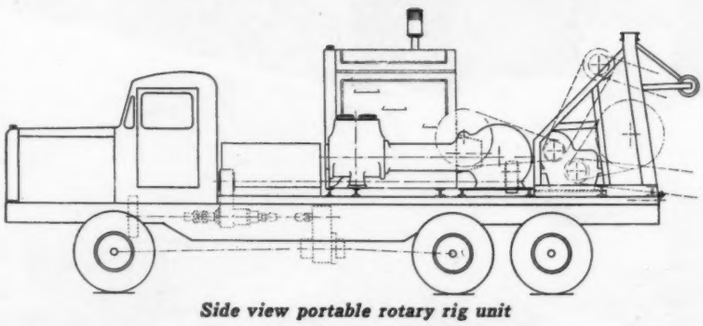
The truck bed is subjected to considerable distortion and weaving, both while moving over the ground, and while drilling. It cannot, therefore, be considered absolutely rigid, and for this reason there are no shafts with three bearings in line without a flexible coupling, friction clutch, or double universal joint to take care of the factor. In the crankcase of an engine, for instance, or in machinery mounted on massive foundations, it is possible to have three or more bearings in line on the same solid shaft, with perfect safety, though naturally the bearings must be lined up with great accuracy. If this practice were carried out on the truck, the weaving of the truck frame would unquestionably throw an excessive load on one or more bearings, with consequent early failure, to say nothing of the difficulty of lining up the bearings in the first place.

This procedure is exemplified in the power take-off box. Since it is rigidly attached to the truck frame, it is subject to misalignment caused by distortion in the frame. Therefore, a double universal joint is provided between the truck transmission and the drilling apparatus power take-off, and also between the drilling apparatus power take-off and the truck power take-off. In all other cases a similar provision is made.

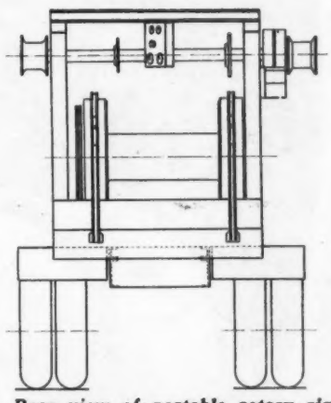
The truck has been in operation for a period of several months and with the exception of two interruptions of service of minor importance, has proved entirely successful.



Plan of portable rotary rig drilling unit



Side view portable rotary rig unit



Rear view of portable rotary rig drilling unit

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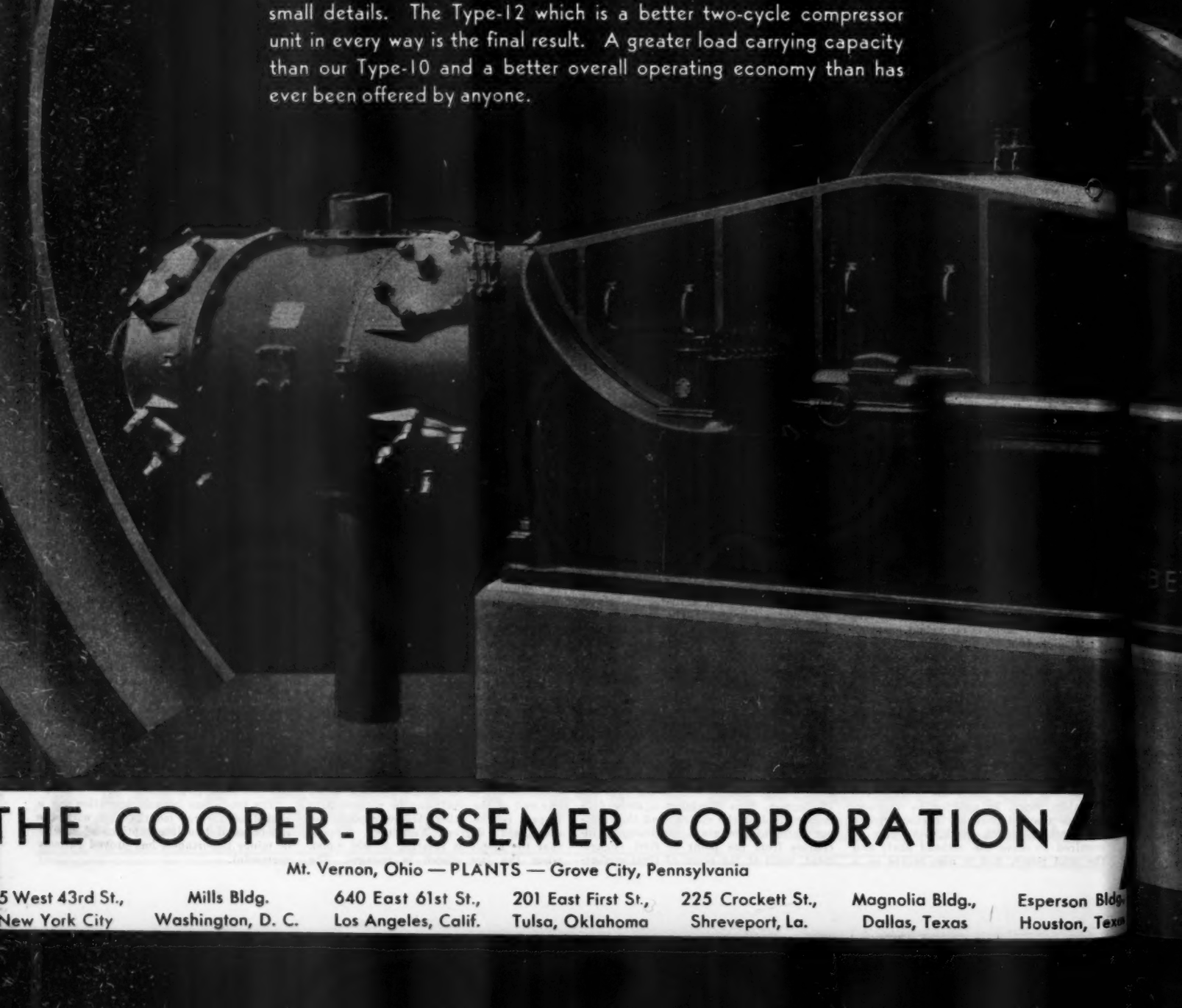

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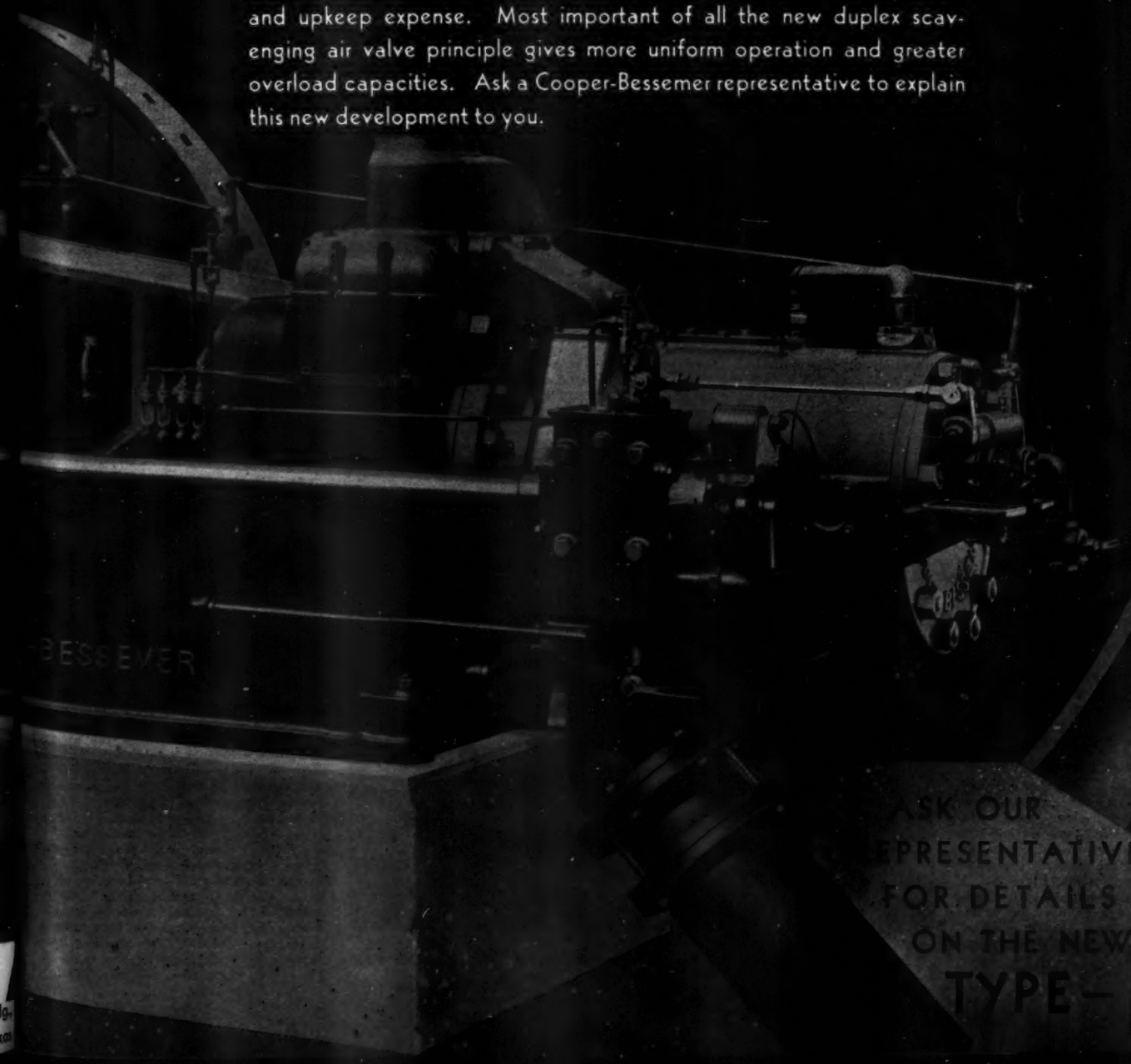

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Central Pneumatic Power Plants Adapted to Pumping Problems

By PAUL D. CORNELIUS
Sullivan Machinery Co.*

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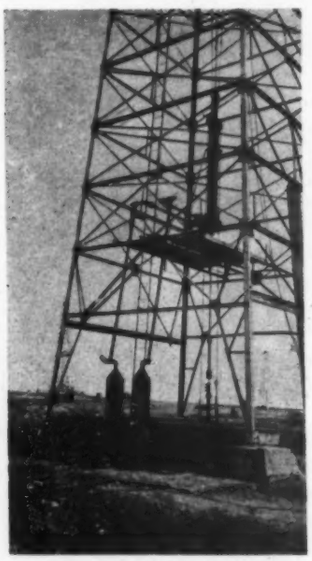
The pneumatic pumping system is an improved method of actuating sucker rod pumps by the direct application of the energy of a compressible fluid to the polished rod through the medium of a specially designed cylinder suspended above the well and directly connected to the upper end of the rod string. The complete system consists of a single stage air compressor as the source of power with its driving unit, pipe lines for conducting the compressed fluid to and from the well, preheaters at the wells, and control valves for maintaining the proper operating pressures.



Oklahoma City installation showing piping in derrick 10-inch cylinder well depth 6500 feet

Operation of Wells

One or more wells may be operated from a single compressor, group of compressors or high pressure gas wells. Where gas-lift plants are already installed it is often only necessary to lay return lines from the wells to the plant and install control valves. Plate No. 1 shows a compressor equipped with a two purpose single stage cylinder in which the head end performs the function of circulating the air in the system boosting from the down stroke pressure to the up stroke pressure required for the pneumatic cylinder operation. The crank end of this same cylinder, also single stage, compresses from atmosphere directly into the intake of the circulating end the necessary quantity of make-up needed to replenish that lost from the system by leakage. The quantity handled by either end can be varied within limits to meet pumping conditions. One cylinder of this type, either on a single unit or in a group of compressors, will take care of the make-up requirements.

The discharge from the compressor (P_2) at the required pressure is conducted by pipe lines to the well or wells in the system where it passes through the preheater (H) raising the temperature and increasing the volume before entering the pumping cylinder (W). The pressure being of a value sufficient to raise the weight of the rods and the fluid in the well is admitted to the pumping cylinder until a point near the end of the up stroke is reached where the intake closes. At the end of the stroke the exhaust valve opens and the pressure decreases to the value required to support the weight of the falling rods and the air is conducted back to the intake of the compressor (P_1) where it is again boosted to the discharge pressure and the cycle is repeated.

Control Valve (R_1) maintains the supply line pressure at the proper valve by passing into the return system any excess quantity over that required for operation of the cylinders. This valve is normally closed as the required volume is closely regulated by a combination of clearance and engine speed. Control valve (R_2) performs a similar duty in maintaining the return line pressure by relieving any excess supplied by the make-up cylinder. This valve is also normally closed by regulation of the make-up quantity.

The pumping of a deep well with sucker rod pumps involves theoretically the lifting of a weight of a certain magnitude a certain distance and the lowering of a weight of lesser magnitude the same distance. The two weights are respectively the weight of the rods plus the fluid and the weight of the rods in fluid. These are the two weights supported by the polished rod alternately modified to some extent by acceleration forces and friction in the well when motion occurs.

These weights determine the two operating pressures used in the pneumatic pumping system. To express these pressures algebraically

$$P_2 = \frac{(R + FW)a + F}{A}$$

and

$$P_1 = \frac{Ra - F}{A}$$

where

P_2 = Up stroke pressure in pumping cylinder.
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R = Weight rods, pump parts, etc.
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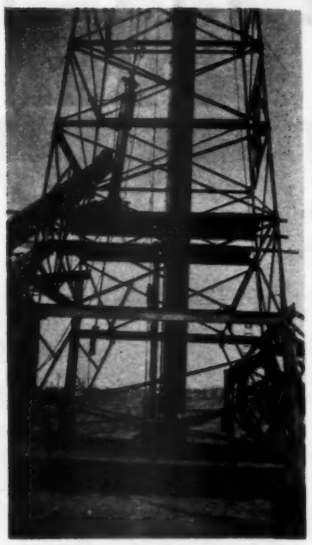
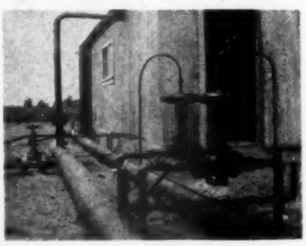
General view of installation of pneumatic pumping unit installed in Van field, Van Zandt County, Texas



Cylinder swung aside for servicing well 7-inch cylinder 4200 feet depth of well

Although it is usually impractical to determine certain unknown values, such as rubbing friction between rods and tubing, plunger or cup friction, stuffing box friction, fluid friction, fluid level, and gravity at bottom hole conditions, before the installation of pumping equipment in the well, the well weights and operating pressures can usually be estimated with reasonable accuracy. With the exception of very crooked holes, the practice of assuming the fluid as water which eventually will be handled, and no fluid level above the pump, will give an up stroke weight which will seldom be exceeded in practice.

With the two operating pressures established, the volume required of the compressor to circulate through the pumping cylinders depends solely on the number and length of polished rod strokes necessary to produce the wells. This basis of establishing the power requirement is a familiar problem irrespective of the method used for actuating the rod string. Due to the unknown bottom hole pumping conditions among which might be mentioned submergence, viscosity, gas, and plunger travel, the prediction of the volumetric displacement of the well pump can only be a guess at the best. The intelligence of this guess is governed largely by the degree in which pertinent facts are assembled, knowledge of approximately similar pumping conditions, and experience. With the apparent pump efficiency established the estimate of compressor requirements for a well or group of wells is a comparatively simple computation. This can be best illustrated by a typical example of a group of wells to be operated from a central compressor plant. Plate 2 represents a typical group of nine wells to be pumped. The fluid level is assumed to be at the pump setting from 3,500 to 3,600 feet. The fluid capacities of the wells range from 50 to 500 bbls. with a fluid gravity of 1.0. The smallest bore pump adequately covering the range is 1¾ inches which gives 643 bbls./day ap-



Installation in Michigan showing regulator hook-up 3-well unit

*Before Oil and Gas Power meeting of the A. S. M. E., Tulsa, May 8-11.

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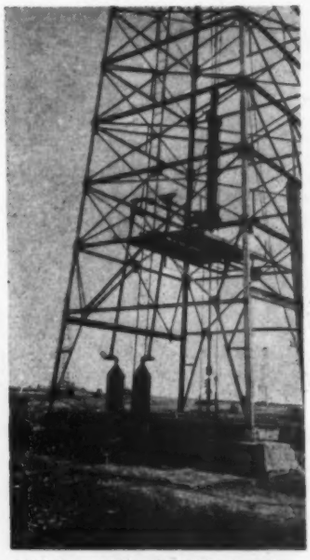

Oklahoma City installation showing piping in derrick 10-inch cylinder well depth 6500 feet

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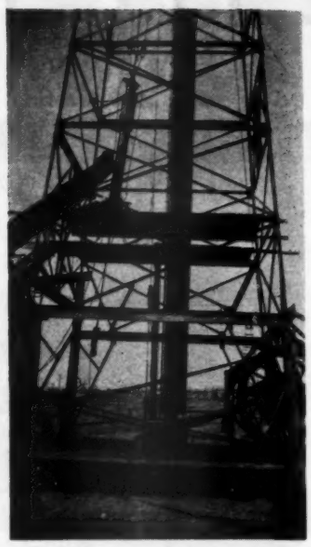

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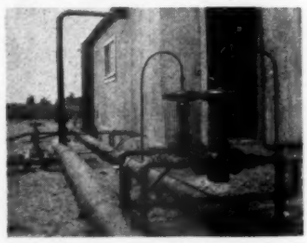

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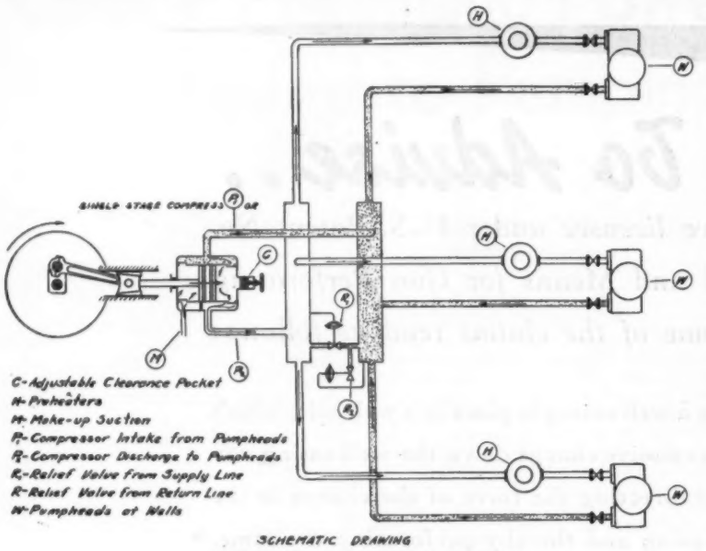
parent displacement at 300 ft./min. polished rod speed. Three-fourths inch sucker rods and a pumping cylinder having a net piston area of 40.3 square inches and a stroke of 72 inches completes the well equipment. The use of identical equipment in each well regardless of fluid capacity is made possible by the extreme flexibility of polished rod speeds available with the pneumatic pumping cylinder. A range of from 2 to 26 strokes per minute, equivalent in a capacity from a minimum of 8 per cent to a maximum of 100 per cent is available by adjusting the throttle valves at the intake and exhaust of the cylinder. Rarely will the well fluid requirements on a given lease have a wider variation than possible with this range of speed.



PNEUMATIC PUMPING SYSTEM

Plate 1

Operating Data

The tabulation of the operating data for this group of wells is given in plate 2. In this case the polished rod strokes vary from 3 to 22.9 per minute, and the apparent pump efficiency is estimated from 65 to 85 per cent. In operating at the lower speeds below 10 S.P.M. the up stroke is maintained at a higher velocity to prevent plunger slippage and the additional time interval for the lower frequency of cycle is accomplished by a slower down stroke. As for example a speed of 5 S.P.M. requires 12 seconds for a complete cycle. By adjustment of the control valves, Plate 1, the up stroke is made in two seconds, or at the rate of 15 S.P.M. and the down stroke in the remaining 10 seconds at the rate of 3 S.P.M. Field tests have shown that pumping efficiency can be maintained at the slower speeds by this method where cup or plunger slippage exists as is usually the case.

Adjustable cut off is provided on the up stroke and compression on the down stroke as a further economy on the volume used. The amount of each setting is a function of the piston speed. The values shown are those easily obtained in practice. At the point of compression the exhaust valve closes and the confined air at exhaust pressure is compressed to intake conditions. Instances of 32 inches cut off and 20-inch compression at 23 S.P.M. have been noted in field tests. Stroke, cut off and compression are adjustable by 4-inch increments to a maximum determined by limitations of cylinder length.

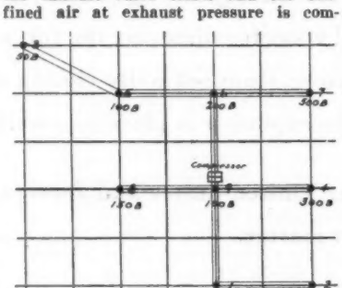


Plate 2—Typical group of wells operated from central compressor depth of wells 3500 to 3600 feet

PLATE 2—OPERATING DATA GROUP OF NINE WELLS

Well No.—	1	2	3	4	5	6	7	8	9
Depth, feet	3,500	3,500	3,600	3,550	3,550	3,525	3,500	3,500	3,525
Barrels/24 hrs.	200	250	50	300	100	200	500	150	100
Gravity of fluid	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Size rods, inches	¾	¾	¾	¾	¾	¾	¾	¾	¾
Pump plunger, inches	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾	1¾
Stroke, inches	72	72	72	72	72	72	72	72	72
Piston area, sq. in.	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3
Weight rods, lbs:									
In air	5,840	5,840	6,010	5,930	5,930	5,885	5,840	5,840	5,885
In fluid	5,090	5,090	5,235	5,160	5,160	5,125	5,090	5,090	5,125
Cylinder parts	300	300	300	300	300	300	300	300	300
Static weight, lbs.:									
Fluid	3,660	3,660	3,760	3,710	3,710	3,683	3,660	3,660	3,683
Upstroke	9,050	9,050	9,295	9,170	9,170	9,108	9,050	9,050	9,108
Downstroke	5,390	5,390	5,535	5,460	5,460	5,425	5,390	5,390	5,425
Est. pump eff., %	75	80	65	80	70	75	85	70	75
S.P.M.	10.4	12.2	3.0	14.6	5.6	10.4	22.9	7.8	5.6
Acceleration, %:									
Upstroke	12	13	6	14	7	12	15	7.5	7
Downstroke	10	10	6	10	6	10	10	8	6
Pressure, lbs./sq. in.:									
Upstroke	251.5	253.9	244.4	259.5	243.6	253.1	265.0	241.4	242.0
Downstroke	130.5	130.5	129.0	122.0	127.4	121.3	120.5	123.2	126.7
Cut off, inches	12	12	8	12	8	12	20	8	8
Volume/24 hrs. at 350° thousand feet	248.5	294.0	74.4	359.5	138.5	250.0	502.0	191.5	137.7
Line friction:									
Supply, lbs./sq. in.	10	10	10	10	10	10	10	10	10
Return, lbs./sq. in.	10	10	10	10	10	10	10	10	10

COMPRESSOR PRESSURE

Discharge	275.0
Intake	110.5
Compression ratio	2.32
Theo. h.p./million	42.0
B.h.p./million at 77.5% overall eff.	54.2
Vol. required by wells, cu. ft./24 hrs.	2,196,100
Vol. for make-up at 4,000 cu. ft. per well	36,000
Total vol. circulated, cu. ft./24 hrs.	2,232,100
B.h.p. for required vol.	121.0
B.h.p. for make-up, 36,000 cu. ft./24 hrs. from 0 lbs./sq. in. to 110.5 lbs./sq. in. gauge	5.6
Total b.h.p. required	126.6

Value of Preheating

Preheating is accomplished through the medium of any number of types of gas fired preheaters or by means of exhaust gas from engines where used to drive the compressor. The value of preheating as applied to pneumatic pumping cylinders cannot be over estimated when it is realized that the volume handled through the compressor and the capacity can be cut in half by raising the temperature at the pump head inlet from 60° F. to 580° F. Temperatures up to 800° F. have been maintained in the field tests although general practice is to limit these values between 300° F. and 450° F.

The sum of the volumes required by each well in the group determine the compressor capacity of the plant. A certain amount is added to the total to take care of losses by leakage. This leakage or make up quality at compressor intake pressure is sometimes available from other sources in existing compressor plants but generally must be supplied either by a small single stage compressor driven by the main compressor or by the type of compressor cylinder recently developed and available for most of the existing gas or diesel compressors in which the boosting of the circulating medium as well as the supply of make up for leakage as taken care of in the same cylinder as previously described.

The highest up stroke pressure and the lowest down stroke pressure required by any well in the group and the total volume required determine the power requirements. The volume required by the nine wells is 2,196,100 C.F.D. to which is added 4,000 C.F.D. leakage per well or 36,000 C.F.D. making a total to be handled by the plant of 2,231,100 C.F.D. with an intake of 110.5 pounds/square inch and discharge of 275 pounds/square inch. For this duty the compressor B.H.P. is determined.

Vol. required, cu. ft./24 hrs.	2,231,000
Intake press., lbs./sq. in.	110.5
Discharge press., lbs./sq. in.	275.0
Ratio compressions (base 14.4 lbs./sq. in.)	2.32
Theoretical h.p., per million	42.0
Overall efficiency, per cent	77.5
B.h.p., per million	54.2
B.h.p., for reg. vol.	121.0
B.h.p. for make up, 36,000 c.f.d. 0-110.5 lbs.	5.6
Total b.h.p. required	126.6

The selection of the tye of compressor is largely a matter of the availability and cost of power. Natural gas always associated with the production of oil is usually available in sufficient quantities. However where the gas is either unsuitable or in insufficient quantities for fuel requirements electric, gasoline or Diesel drive may be the answer. Modern gas engines which can be converted to Diesels at a small expense are applicable to conditions where future scarcity of gas is a probability.

All types of machines are available in a wide range of sizes and it is only necessary to select one of adequate power rating and equip with compressor cylinders of proper capacity, bearing in mind that relatively small bore cylinders are required for large capacity due to the high intake pressure conditions.

Selecting Horsepower

For the purpose of completing the problem let us assume that the fuel situation indicates gas engines with the probability of future conversion to Diesel. The selection will probably be either one 150-horsepower twin or two 70-horsepower single units as being the closest in rating to the power needed. In either case the determination of cylinder sizes involves the selection of one double acting and one combination single acting requiring 63.6 horsepower each. With an assumed volumetric efficiency of 80 per

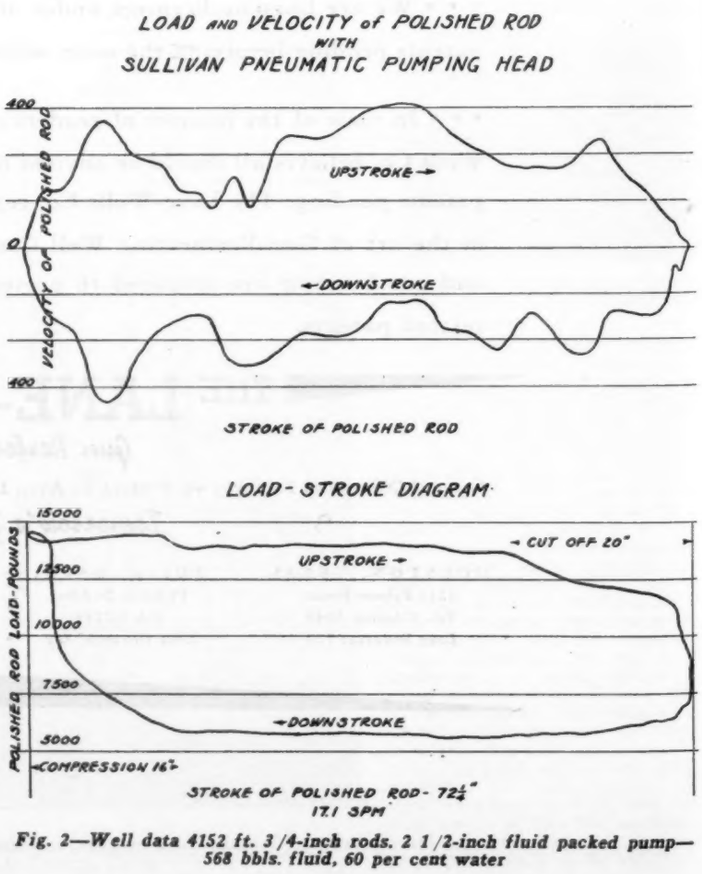
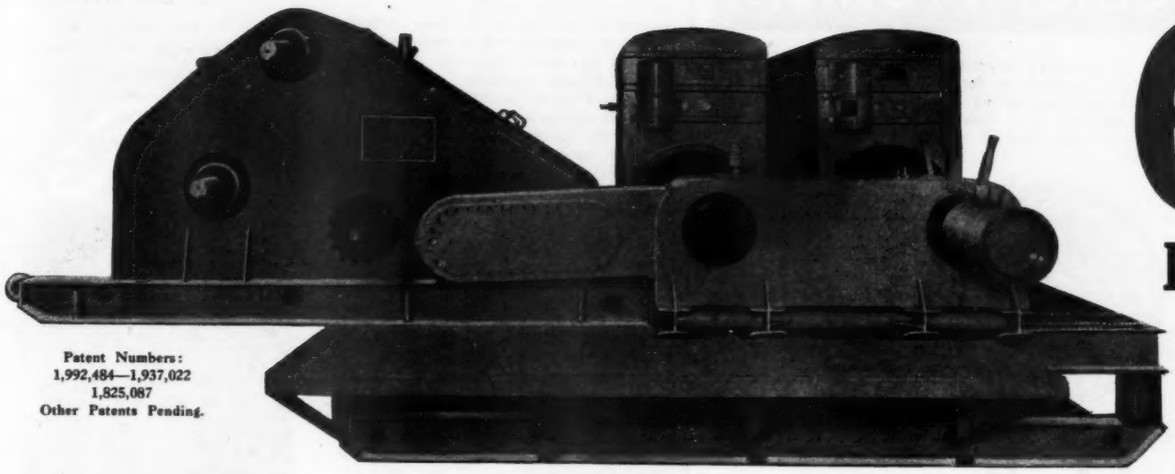


Fig. 2—Well data 4152 ft. 3/4-inch rods. 2 1/2-inch fluid packed pump—568 bbls. fluid, 60 per cent water

7 of these complete drilling rigs sold in 60 DAYS!



Patent Numbers:
1,992,484—1,937,022
1,825,087
Other Patents Pending.

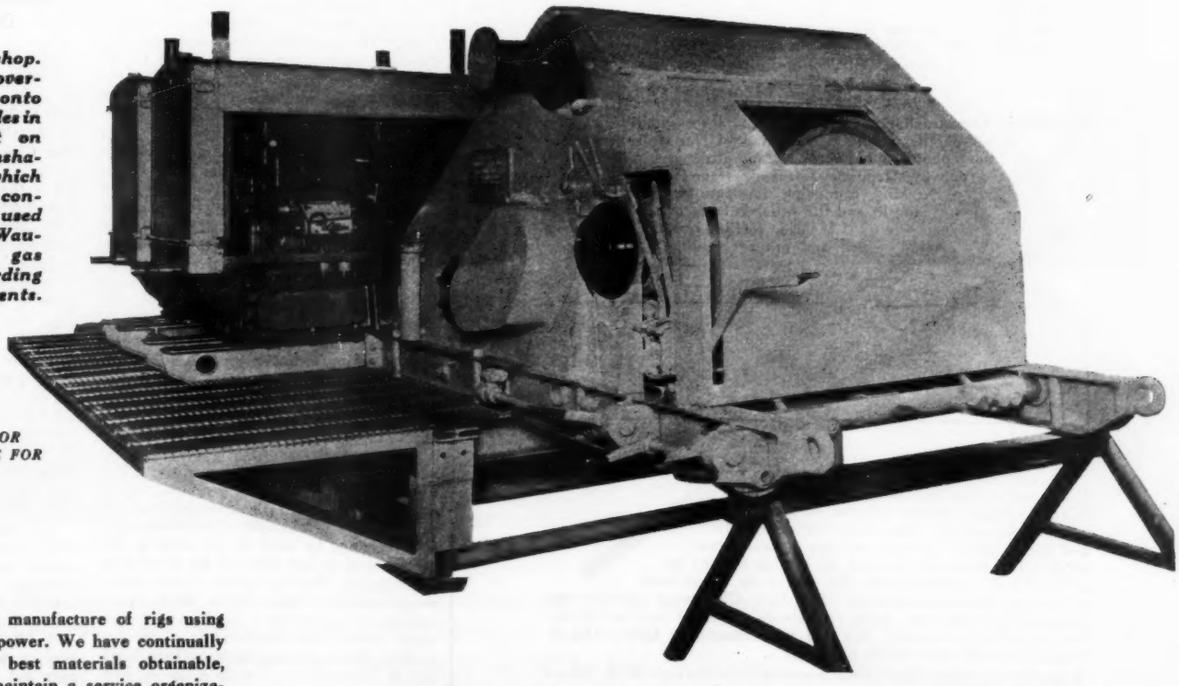
MODEL 876

Showing oil-proof case housing the drive between engines and drive to drawworks. Chains in this case are force feed lubricated by oil pump in dual drive case. V-belt pulley is for driving pump. View also shows rotary sprocket, extended drum shaft, and extended line shaft for automatic cathead.

REPRESENTS THE REAL STAMP OF APPROVAL ON THIS MODERNIZED DRILLING MACHINERY

These enclosed type drawworks, rigid, compact and readily portable are especially designed for gas, gasoline, Diesel or oil engines, with complete facilities for compounding to drawworks or pumps.

Showing unit set up in our shop. That part of drawworks overhanging substructure slips onto the derrick floor. Note holes in substructure which bolt on derrick foundation. Waukesha-Hesselman oil engines, which use Diesel fuel or are easily convertible to natural gas, are used as power. These types or Waukesha gasoline-natural gas engines may be used, according to the operator's requirements.



WRITE FOR BULLETIN C-100, OR ASK AT YOUR SUPPLY STORE FOR YOUR COPY.

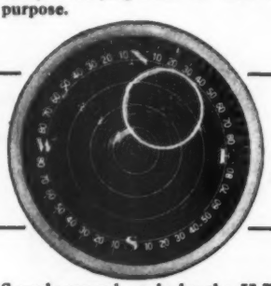
This company pioneered the manufacture of rigs using multiple cylinder engines as power. We have continually improved designs, using the best materials obtainable, and skilled mechanics. We maintain a service organization capable of servicing the units we manufacture as well as the Waukesha engines used to power them. Complete replacement stocks are carried in Houston to service the rig. While we manufacture various sizes and types of rigs, we are equipped to make any special design, or to convert present steam rigs to types powered by multiple cylinder engines.

PORTABLE RIG COMPANY, INC.

Main Office and Plant: HOUSTON, TEXAS
Branches at DALLAS and LONGVIEW, TEXAS
Distributors in Texas for
ENGINES WAUKESHA PARTS
EXPORT OFFICE: 30 ROCKEFELLER PLAZA, NEW YORK, U. S. A.

Three Ways to drill *Straight* to Greater Profits...

. . . . and the value of *all three* scientifically and *practically* demonstrated! Quick, sure methods of determining the straightness or direction of drill holes are playing an increasingly important part in the *profit picture*. And Sperry-Sun offers a complete—and completely satisfying—line of well surveying instruments for every purpose.



Sample record made by the H-K

the H-K

(HEWITT) (KUSTER)

Directional Magnetic Clinograph

introduces a radical improvement and an exclusive method of recording in single readings both the amount and the direction of inclination, utilizing the triangular suspended cross hair plumb bob and floating compass principles, together with a simple, automatically operated and practically fool-proof photograph camera. The H-K Clinograph (designed for *open holes only*) is lowered on a sand or bailing line at a speed ranging from 400 to 800 feet per minute.

Permanent, accurate records on paper discs are available within five minutes after removing instrument from hole.

(U. S. Patent 1,812,994 and others pending)

SURWEL

Gyroscopic Clinograph records vertical deviation and its direction at all depths, giving a true map of the well in permanent photographic form. Not affected by *Tortuosity* nor by *Magnetic Influence* when recording. Self-checking, producing duplicate records—one going in and the other coming out. (U. S. Patents 1,124,068, 1,812,994, 1,959,141, 1,960,038 and others pending.)

SYFO

Daily use of the *Syfo Clinograph* permits accurate control of inclination in drilling operations. The tests are accurately and easily made *without the use of dangerous acids*. The Syfo can be used on a wire line or as a "Go-Devil" running inside the drill stem, or on sand or bailing line in open hole. The *Syfo* Clinograph quickly and inexpensively furnishes daily records on paper of vertical deviation in drilling—records that can be permanently filed. (U. S. Patent 1,962,634 and others pending.)

Write for complete information covering Syfo-Surwel—H-K. *Direct* your 1935 drilling for greater profit!

SPERRY-SUN WELL SURVEYING CO.

Main Office: 1608 Walnut Street, Philadelphia, Pa.

Branch Service Offices:

HOUSTON, TEXAS
3118 Blodgett Ave.

LONG BEACH, CALIF.
549 East Bixby Road
(3800 Block, Atlantic Ave.)

TULSA, OKLAHOMA
425 Petroleum Bldg.

cent the displacement of the double acting cylinder would be:

$$\frac{63.6}{54.2} \times \frac{1{,}000{,}000}{.80} \times \frac{14.4}{110.5 + 14.4} =$$

169,000 C.F.D

This indicates a 6"x16" double acting cylinder at 250 r.p.m. A similar proceedure arrives at an 8-inch single acting double duty for the other.

Since there is no problem of balancing well loads involved with this system the compressor plant can be placed at any convenient location on the lease without materially effecting the quantity of piping used to connect the wells. The probability of handling large quantities of water later offers no difficulties and requires no change whatever in equipment. Should the increased fluid in the edge wells be greater than the decrease in those farther up the structure, so that the power demand exceeds the original plant rating, additional compressor capacity can be readily added at any time to the existing system. No other change in equipment need be made except possibly the running of larger plungers in wells producing in excess of 500 to 600 bbls. of fluid per day.

The compressor plants equipped with automatic protective devices require no special operators and are attended by the pumpers. Since the operating expense of the plant consisting of interest, depreciation, fuel, lubricating oil and repairs constitutes only 16 per cent of the total direct operating expense of the lease, expansion to handle additional fluid is not at all formidable.

The pneumatic pumping head eliminates peak loads on the sucker rods by virtue of a controlled pull determined by the operating pressures used. Both upstroke and downstroke loads are uniform and within the pressure range used resulting in minimum of stress swing. The polished rod, however, being unconstrained to move in a given path and floating on a compressible cushion reacts freely to load changes originating in the well and occurring throughout the stroke cycle. The load variations are probably due largely to the natural period of vibrations of the elastic rod string modified by the damping effect of the fluid and variable rubbing friction. Figure No. 2 illustrates this graphically for a complete stroke cycle. The upper curve is polished rod velocity and the lower curve pull. Both were made by plotting points obtained with a motion picture camera at intervals of .0615 second. A number of such studies on wells from 1,600 to 6,500 feet deep are typical except that the velocity changes are more pronounced in the deeper wells.

The application of the pneumatic pumping head to producing wells provides certain inherent features of particular importance in reducing operating expense. Its extreme flexibility permits operating at the correct speed for maximum economy and provides ability to meet changing well conditions with power requirements proportional to the duty. The minimum of original investment is required by virtue of the ease with which capacity can be changed. Compressor load is determined by total of all wells in the system and is not affected by individual well change. Salvage value of the equipment is high as from 50 to 80 per cent consists of compressor, pipe and fittings which have wide application in the industry. The pumping head is long lived and is applicable to a wide range of well conditions.

LONDON OIL SHARES

A 1935 refrence book dealing with the financial and other phases of activity of the oil companies dealt in on the London and Provincial Stock Exchanges has been issued by Ricardo Daniels of London, England. Appended to the statement of each company there is a "yield table," with a table showing past performance of the company. Much additional data is contained in the report on each of the 24 companies reviewed.

The book is a study of these companies with headquarters in London but with field operations in all oil-producing countries excepting the United States. The book is for private circulation and additional information may be obtained from Ricardo Daniels & Co., 11, Copthall Court, and Stock Exchange, London, E.C. 2, England.

George Bell Returns to Old Associations

George F. Bell, who for the past 18 years was manager of the Tulsa office and wire rope adjuster in the oil country for the American Steel & Wire Co., is now affiliated with the J. B. Barnes Drilling Co., of Oklahoma City.

There are few better known men in oildom than George Bell. In 1881 he started in as an apprentice to learn locomotive blacksmithing, which he left to dress tools on the second oil well drilled in Lima, Ohio, in 1885, known as the Citizens Well at Pine Street and Hog Creek. He was promoted to drilling on the fifth well in that district and followed that line for the next three years. The Trenton Rock Oil Co. placed him with Mike Herold, its head fisherman, to help take care of fishing jobs on the company's 14 strings of cable tools. Bell learned to fish, and dressed all fishing tools at the rig.

GEORGE F. BELL

In 1890 he was engaged by Mart Muller Tool Co. of South Lima, Ohio, to make oil well tools, the beginning of his long shop career. In 1898 he was hired by J. J. Carter, president of the Carter Oil Co., of Sistersville, W. Va., and was foreman of the Carter shops for 10 years. Later he was foreman of the Oil Well Supply Co.'s shops in Pittsburgh, Pa., and still later, foreman of the Union Tool Co.'s shops in West Chicago, Ill.

The outstanding achievement of Mr. Bell's career was his success in replacing manila rope with wire rope for drilling purposes. Contractors and drillers thought this an impossibility and their views were shared by Carter Oil Co., officials. Bell was granted the privilege of experimenting regardless of expense. Not only did he accomplish his aim, but he also designed and made all the necessary equipment—drilling clamps, rope sockets, wire line knives and oil savers. Mr. Bell has been granted 17 patents, the most outstanding being Bell's nonkink bull wheel flanges.

Mr. Bell's new connection with J. B. Barnes Drilling Co. is as their Tulsa representative. An interesting point is that Mr. Bell was in the employ of Mr. Barnes over 37 years ago in Smithfield, W. Va.

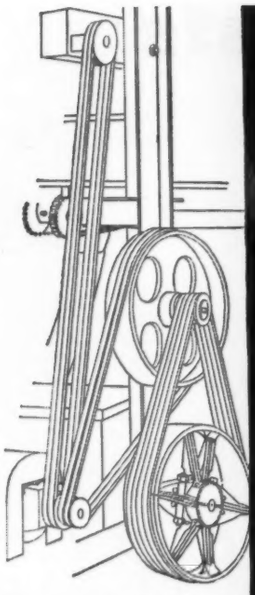
Pipe line protection
cuts annual costs

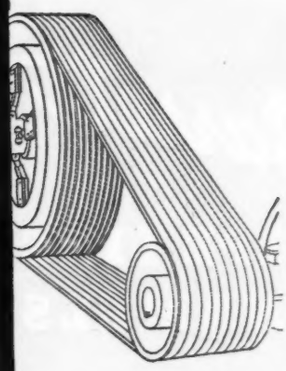
Reproduction of the micrograph above shows the interlocking of the flakes of the internal reinforcement used by Barrett. By laminating with the waterproofing agent they give Barrett Pipe Line Enamels unusual toughness and resistance to soil stresses.

THE efficiency of any pipe line coating is measured by its resistance to water and soil acids, to soil stresses, to electrolysis and to the corrosive effects of submersion. Without these qualities it cannot be truly economical. Barrett Pipe Line Enamels are designed to satisfy all requirements —to assure effective protection at low annual cost. Experienced Barrett technical men will gladly work with you, combining their special knowledge and experience with your familiarity with conditions along the right of way, to provide the maximum protection for every dollar spent. Phone, wire or write.

THE BARRETT COMPANY, 40 Rector Street, New York, N. Y.

For pipe of large diameter, The Barrett Company will furnish equipment required to revolve pipe and spread enamel.





See How a V-BELT CHANGES at the BEND

That's WHY the

Concave Side

Saves Money

You can actually *feel* a V-belt change shape as it bends.

The top of the belt, being under *tension*, grows *narrower*. The bottom, under compression, *widens*. The effect of this, on a straight-sided belt is shown in figure 1 (right). Note especially the out-bulge of the sides.

Now, *contrast* this side-bulge with the effect produced in a V-belt having the patented *concave* side (figure 2). The *same* shape-change merely *straightens* the precisely engineered concavity—producing a contour that *exactly fits* the sheave groove.

Clearly, this *exact fit* saves money in two ways (1) No out-bulge at the side means uniform wear, *longer life!* (2) The *full* side wall uniformly grips the pulley, carrying heavier loads without slippage—a big saving in increased drive efficiency.

The Gates Vulco Rope Drive is the *only* V-belt built with the patented concave side.

WHAT HAPPENS *When a* V-Belt **BENDS**

Fig. 1. *Straight-Sided Belt*

Fig. 2. *Belt with Patented* CONCAVE *Side*

THE GATES RUBBER CO.
Factory Branches:
Terminal Bldg.
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DENVER

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

Improvements in Technique of Compressor Station Operation

By B. L. ROGERS
Superintendent, Compressor Stations, Lone Star Gas Co.*

As the progress of the automobile industry has exerted a great influence on the solution of problems of the designer and manufacturer of gas engines, so have those who have compressor station investment in their charge, taken various "leaves from the book" of that industry, and adapted them to the betterment of equipment of older design.

Noteworthy among the "power plant problems" to which the automotive industry's progress has forced attention and study, are those of "Valve and Valve Seat Wear," "Valve Cooling," "Cylinder and Ring Wear," "Bearing Life and Vibration," and "The Selection of Lubricants."

Since the advent of the small single-acting, horizontal engine, with air-cooled, truncated piston, its accessibility has made intensive study of many of these problems general.

More suitable metals containing nickel, chromium, and molybdenum, which have appeared in valves and valve seats on more recent engines, demonstrating that circulating cooling water through the valve and stem is unnecessary, have brought greatly increased life to the valves and seats. This has caused these metals to be used on older engines, eliminating water circulation through valves, and bringing the same relief from frequent grinding and the same increase in valve life.

In some cases it has been found most satisfactory to "salt-cool" hollow valves, to avoid the necessity for circulating water through them. Cooling water circulation has been brought closer to the actual valve seat area and in some cases even circulated through inserted valve seats, improving their life. The jetting of water into the valve casing, causing turbulence in the part of the jacket nearest the valve seat, which many 1935 automobile engine models have pioneered, will be watched with a great deal of interest.

Main and Connecting Rod Bearings

The evolution of main and connecting rod bearings for gas engines has been as eventful of late years, as has the improvement of automobile engines. Ever since the World War superior bearing metals have been available at a reasonable cost, and the following general practices are among the noteworthy advances:

1. The practice of "tinning" the shells, to flux the bearing metal firmly to the shell.

2. The complete absence of oil grooves, except one narrow one in the "bottom shell" directly under the axis of the shaft and perpendicular to the rotation, to insure a complete oil film quickly.

3. Slightly chamfering each shell on the edge opposing the rotation to speed up the establishment of the oil film.

4. The realization that 95 per cent of all lost bearings were "hammered out" rather than burned out, has brought about the practice of adjusting them extremely close.

In this connection it has long been general practice to tighten all main bearings while the engine is running, pulling the wedge tight, using a short handled wrench, relying upon the sense of touch rather than brute strength, and never backing off on the "wedge bolt."

Also to tighten connecting rod bearings, do so immediately after stopping the engine, while the "running heat" is still in bearings and pins, pulling them perfectly snug, without any "back off" on the "wedge bolt."

Frequent inspections are made of the main bearing adjustment by applying a "dial tester" reading in thousands of an inch, by means of a rod extending through the "inspection well" in the "top shell" to the top of the shaft. This indicates the vertical movement of the shaft and a tolerance of .004 inch is the maximum permitted.

Since inaugurating these practices many plants have gone for several years (1) without the loss of a bearing; (2) without the loss of a foundation bolt; (3) without the necessity to regrout an engine; (4) without a noticeable longitudinal vibration of foundation blocks.

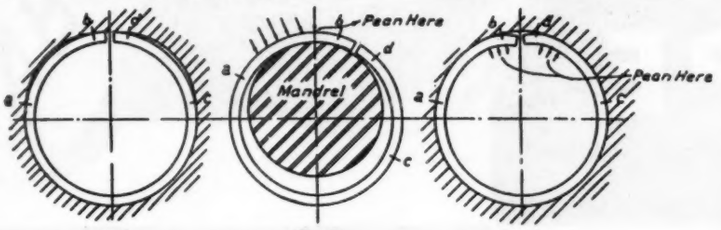
Importance of Ring Fit Realized

Various ingenious and practical methods of building "tension" into piston rings have been developed. (1) But how often is a new bore of precisely the diameter for which the ring was made. In many makes of large engines a wide tolerance is found, and no two sets of rings will fit the respective bores exactly alike. (2) Also stock rings do not often closely fit the cylinder, which we find to be of a slightly different diameter than we antifipated, when ordering rings. (3) Again when a cylinder which is to be fitted with new rings is taken down, the horizontal and vertical micrometer measurements are rarely found to be exactly alike.

Peaning Rings

A simple means has been found of remedying this difficulty and assuring a perfect fit within .002 inch at all points on the ring circumference, regardless of whether a bore is round or slightly elliptical. This simple means consists of peaning the ring lightly but firmly with a small, soft brass, ball pean hammer, or by means of a "peaning tool." Method and one type of "peaning tool' are illustrated in simple sketches.

Assume that snap ring in Figure 1 is placed in bore, the gap in ring being in the position in which it will be when piston is in place. And the portions A-B and C-D of the ring do not touch the bore, by .010 inch to .015 inch at a point mid-way between A and B and midway between C and D.



Locate "A" on the ring as the first point at which the ring leaves the bore by .002 inch and mark point on ring with chalk. Also locate "B" on the ring as the last point to which a .002 inch feeler will swing between ring and the bore and mark with chalk. Locate points C and D in the same way and mark with chalk.

Then using for a mandrel any machined surface, which has a diameter reasonably close to the inside diameter of the ring, place the ring over this mandrel and locating the approximate midpoint between A and B on the ring, and marking with chalk, hold the ring squarely on the mandrel and pean lightly but firmly, with either a light weight, soft brass, ball pean hammer or a peaning tool, for a distance usually about half the distance toward "A" from the midpoint and toward "B" from the midpoint. Turning the ring slightly on the mandrel so that the blow will strike directly in line with the common vertical centerline of the mandrel and the ring and lightening the blows slightly as the point struck approaches "A" and "B" respectively. The number and weight of the blows necessary can quickly be determined, but at first ring will have to be tried in the bore repeatedly to note progress. Most operators quickly become expert if careful at first.

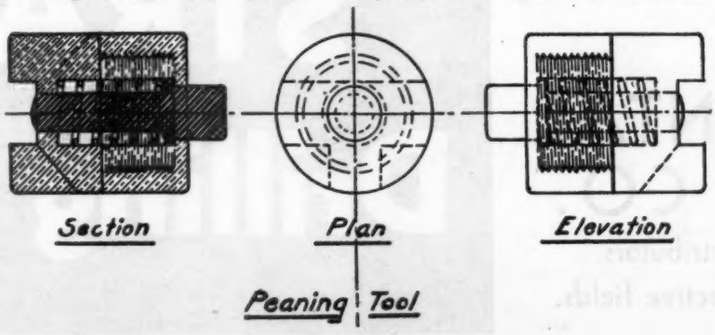


Figure 3 shows same ring in the bore after "A-B" and "C-D" have been peaned until all points between A and B and between C and D come within .002 inch of contact with the bore.

But since the effect of the peaning process, to accomplish this, was to stretch the outer surface of the ring between A and B with reference to the inner surface between the same points, we now find the outer surface of the ring from "B" to the gap, now curls in away from the bore (exaggerated in Figure 3).

It is now a simple matter to leave the ring in the bore and lightly pean the inner surface starting to the left of "B" and moving slowly toward the gap, and to the right of "D" and moving toward the gap, until those short ring ends have been laid back against the cylinder bore within the desired tolerance.

It is obvious that each ring must be peaned in the exact position in which its gap will be placed on the piston, and the piston turned in exact position planned. Then having no more than .002 inch clearance between ring surface and cylinder wall at any point, a perfect ring fit may be assured (assuming the surface of the ring is not finished extremely smooth) even before the "idling," limbering up period is complete.

In many instances where the foregoing practice was not used, pistons have never been without a marked "blow-by," and a complete oil film never established, within the life of the set of rings.

But assuming due diligence has been exercised in fitting rings as above described, we are firmly of the belief that if ever rings are found "stock in the groove," groove and butt clearance being in line, it may be traced to one of the following causes:

1. Either too much oil has been delivered to the rings.

2. Or water has leaked into the cylinder.

Lubrication and Lubricating Oils

The selection of lubricating oils is of vital importance. Some years ago we awakened to a realization of the fact that 58 different oils were in use in our compressor stations, and that horsepower hours per gallon economies showed a wide range of difference.

Since that time, by carefully studying the records of each oil as to economy versus maintenance cost, all but five of the original 58 have been gradually eliminated, with constantly increasing horsepower hours per gallon and consistently reducing maintenance costs.

Some few plants had been using a single oil for both cylinder lubrication and circulating oil. None of these exceeded the average economy for all plants. Examination of the disbursement of oil in each of these one oil plants indicated that in each case the oil used was much better suited to one purpose than the other.

The first step was to stop the use in the circulating system of oils which the records showed best suited for use in lubricators, and vice versa, and to substitute an oil which had a record among the best, for the purpose desired. This examination of records also showed some plants where two oils were used, had one of them used for one purpose, when it was better suited to the other. Thus the elimination of oils proceeded and we now know the remaining oils in use are adapted to the purpose for which they are purchased.

Concrete Results

The concrete results of this experience are these firm convictions:

1. The use of an oil for cylinder lubrication in a gas engine, which has a Saybolt viscosity of less than 57 seconds at 210° F. is false economy.

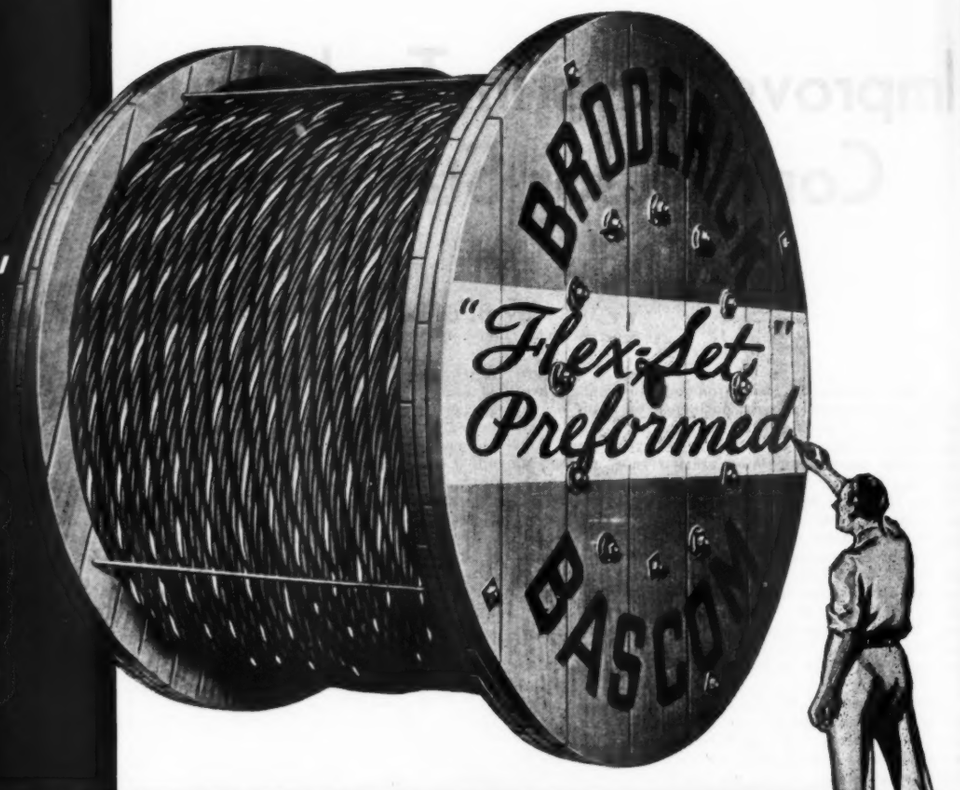
2. The use of an oil for that purpose, having a Saybolt viscosity of more than 75 seconds at 210 degrees is extravagant and cannot justify the price per gallon.

3. An oil of viscosity ranging between 57 seconds and 75 seconds at 210 degrees, "flash" and "fire test" and "carbon content" being in line, can be depended upon to give 15,000 brake horsepower hours per gallon, when lubricating both power and compressor cylinders and power and

(Continued on Page 62)

*Before Natural Gas Department, A.G.A., Memphis, Tenn., April, 1935.

The "LAST WORD" IN WIRE ROPE



NRA

We couldn't find better wire than we have been using in Yellow Strand Rotary Drilling Lines, which is drawn to our own specifications after more than half a century of rope making experience.

We couldn't build it into better balanced, more uniform lines.

But we could—and did—adopt the preforming process which does away with internal stress and its resulting evils.

Result: "Flex-Set" Preformed Yellow Strand lines—tough, elastic, strong by nature. Improved by preforming to resist kinking and fatiguing, to spool true and reeve easily, to run smoothly in grooves, to make splicing easier, to work better, last longer and save money on any rotary job. Try them.

Broderick & Bascom Rope Co., St. Louis

THE CONTINENTAL SUPPLY CO.

Mid-Continent Distributors.
Ample Stocks in all active fields.

R3R4

"Flex-Set" Preformed YELLOW STRAND Drilling Lines

Possibility of Deep Production in Northwestern Pennsylvania

By C. R. FETTKE[1] and S. H. CATHCART[2*]

Since 1925 complete sets of drill cutting samples have been taken from a considerable number of deep wells in western New York and northwestern Pennsylvania. This makes possible the construction of accurate sections of the strata penetrated. The sections obtained from 13 wells have been selected to show the subsurface stratigraphy along a north and south belt extending from southern Erie County, New York, which lies well within the southern portion of the Medina gas belt of that state, to northern Elk County, Pennsylvania. The locations of these wells, numbered from 1 to 13, are shown on Figure 5. Well No. 10 is 70 miles south of No. 2. The sections are shown graphically in Figure 6 in as much detail as the scale permits. They have been lined up on the base of the Onondaga limestone, a horizon that is readily recognizable throughout the area under discussion.

The wells represented in Figure 6 are the following:

1. Arkansas Fuel Oil Co.'s No. 2 Hotchkiss.
2. Iroquois Gas Corp.'s No. 796.
3. Iroquois Gas Corp.'s No. 844.
4. Hanley & Bird and Belmont Quadrangle Drilling Corp.'s No. 1 L. B. Autman (Hale).
5. J. Brooke Reed's No. 1 Quinlan.
6. J. Brooke Reed's No. 1 Ryder-Scott.
7. Bradford Deep Well Co.'s well at Derrick City.
8. North Penn Gas Co.'s Zerbe well.
9. Atlantic Seaboard Natural Gas Co., Inc.'s No. 1 Benjamin Haywood.
10. United Natural Gas Co.'s No. 3,737 on Warrant 3,788.
11. Potter Development Co.'s No. 1 A. Matteson.
12. Belmont Quadrangle Drilling Corp.'s Gilbert well.
13. S. J. Brendel and associates' No. 1 Arthur Sheldon.

The thickness of the major subdivisions of the Devonian and Silurian systems in the 13 deep well sections of Figure 6 are summarized in Table 1.

DEFINITION OF FORMATIONS

Devonian System

The Devonian system of northwestern Pennsylvania has been classified as follows:

UPPER DEVONIAN:
- Conewango group { Oswayo formation / Cattaraugus formation
- Chemung group
- Portage group
- Genesee black shale
- Tully limestone

MIDDLE DEVONIAN:
- Hamilton group
- Onondaga limestone

LOWER DEVONIAN:
- Oriskany sandstone
- Helderberg group

Thickening of Beds Southeastward

Throughout much of the Paleozoic era, the Appalachian region consisted of a slowly subsiding geosyncline or trough, occupied by a shallow arm of the sea, into which sediments were washed from a landmass lying to the east and southeast. Deposition and subsidence were greatest along the eastern margins of this trough. Starting in northwestern Pennsylvania, therefore, most of the formations thicken as one goes southeastward. This is illustrated by the series of sections shown in Figures 6 and 7.

Between Sections 1 and 10, the upper Devonian beds, exclusive of the Conewango group, increase from 2,960 to 4,181 feet, an average of 33 feet per mile; between Sections 4 and 8, from 3,510 to 4,360 feet, also an average of 33 feet per mile; and between Sections 12 and 11, from 4,082 to 4,559 feet, an average of 22 feet per mile.

This is the concluding section of an important paper prepared by Messrs. Fettke and Cathcart. The first installment was published in The Oil and Gas Journal of May 2.

The interval between the base of the Onondaga limestone and the top of the Medina between Sections 1 and 10 increases from 1,090 to 1,676 feet, an average of 16 feet per mile; between the Niagara section and Section 2, from 690 to 812 feet, an average of 3 feet per mile; between Sections 2 and 4, from 812 to 1,148 feet, an average of 11 feet per mile; between Sections 4 and 7, from 1,148 to 1,425 feet, an average of 18 feet per mile; and between Section 12 and the exposed section in the vicinity of Bellefonte, from 1,391 to about 2,600 feet, an average of about 14 feet per mile.

Some Skeleton Well Sections in the Northwest Counties

Some logs of wells drilled to the deeper horizons in the northwest corner of the state are shown in Figure 8 by Sections 14 to 26. Locations appear on Figure 5. Complete sets of cuttings were not available from any of these wells. The sections as shown are based upon drillers' logs, supplemented in some instances by partial sets of samples.

Notes on Well Sections—The log of the Presque Isle well is after a log published by Prosser.

A partial set of cuttings from R. C. Jameson's No. 1 well indicates the following. The Oriskany is represented by very fine crystalline brownish-gray sandy dolomitic limestone which contains medium-size quartz grains, a portion of which are well rounded. The Lockport dolomite occurs from 3,925 to 4,210 feet and includes a porous zone that probably represents the Newburg sand horizon. The Red Medina is present between 4,348 to 4,445 feet and the base of white Medina occurs at 4,536 feet.

Salt water encountered in the Oriskany in H. Probst No. 1 well had the composition shown below.

ANALYSIS OF SALT WATER, H. PROBST NO. 1 MERCER COUNTY, C. R. FETTKE, ANALYST

	Grams per liter
Na,K	56.1756
Ca	56.0040
Mg	7.8058
Fe	.1444
Al	.0642
SO_4	.1662
Cl	208.0777
CO_3	none
SiO_2	none
Total	328.4379

A partial set of samples are available from the Ulf No. 1 well.

Section 24 represents the Scott Munnell No. 1 well, Lawrence County, somewhat removed from the northwestern area. A complete set of cuttings taken from this well has been made available but the section has been correlated only

Fig. 5

Fig. 5

[1]Professor of Geology, Carnegie Institute of Technology.
[2]Senior Geologist, Pennsylvania Geological Survey.
*Before fifth annual oil and gas conference, Pennsylvania State College, Pa., April 26, and Oil Institute, Titusville, Pa., May 27.

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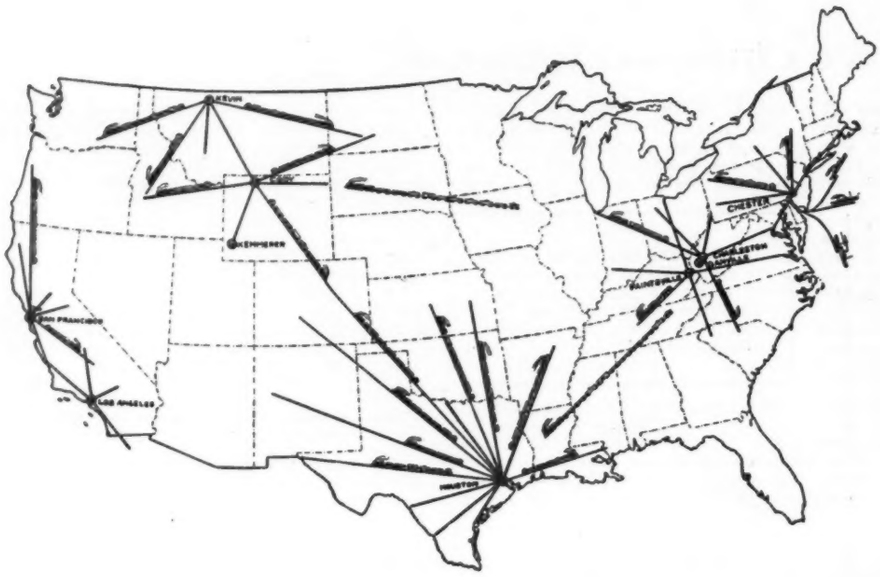

The movie illustrations show "Chester" casing being used in the East Texas field.

These "shots" taken in the field furnish authentic testimony to the satisfactory performance of "Chester" Casing.

●

Chester also makes "Wrought" Iron pipe—manufactured from genuine old-fashioned hand puddled muck bar made in our own mills from 100% pig iron.

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Louisiana Supply Co., Sulphur and Brimstone, La.

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Okmulgee Supply Corp., Okmulgee, Okla., and Branches

Stephen H. McCabe, 508 4th Street, San Francisco, Calif.

Herley Supply Co., 3006 Cherry Ave., Long Beach, Calif.

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Star Drilling Machine Co., 550 Clinton Street, Portland, Ore., and Akron, Ohio

United Pipe & Supply Corp., Charleston, W. Va., and Branches

Bovaird, & Co., Bradford, Pa.

Kane Supply Co., Kane, Pa., and Branches

Prichard Supply Co., Mannington, W. Va., and Branches

LeValley, McLeod, Kinkaid Co., Elmira and Olean, N. Y.

CHESTER

STEEL CASING AND LINE PIPE

in part. Fettke described the Oriskany in this well as follows:

Sixteen feet of fine to medium-grained light gray sandstone, slightly calcareous; many of quartz grains are well rounded. Some grains show crystal facets due to deposition of secondary silica. Two feet, fine to medium-grained grayish-brown, calcareous sandstone. Nine feet fine crystalline grayish-brown limestone. Contains considerable percentage of fine to medium-sized quartz grains.

Possibilities of Shallow Oil or Gas—In general, it has been said that northwest of the proven oil and gas fields of Venango County the "shallow" sands which produce there rise to outcrop, grow thin, disappear or are otherwise so changed that they fail as effective reservoir rocks. Sections 14-23 plotted from drillers' logs tend to verify that suggestion but in the absence of complete sets of samples from the upper formations in the northwestern area we do not know what the sand condition there actually is.

The area was first explored for shallow production in the period that immediately followed the drilling of the Drake well and occasional wells have been drilled in later years. The net results of a fairly large number of scattered holes has been a little oil production at several localities and a few small gas pools. While these results are not encouraging, we feel that the possibility of finding shallow production is far from negligible.

GAS AND OIL POSSIBILITIES OF DEEPER SANDS

Structure

The regional structure has been outlined.

On Figure 5, structure contours on the Oriskany sand are shown. They are necessarily very much generalized due to relatively few wells having been drilled to the Oriskany in this region. It is believed, however, that they are sufficiently accurate to be useful as a guide in estimating approximate depths to the Oriskany. The contours show the depth of the top of the Oriskany or its equivalent horizon below sea level. By adding the elevation of the surface above sea level, the depth of the Oriskany at any particular locality in the area contoured can be roughly estimated.

In north central Pennsylvania in Potter and Tioga Counties, gas in the Oriskany has been encountered only on well-defined domes along pronounced anticlinal structures. The surface geology of northwestern Pennsylvania gives no indications of the existence of such well-defined structures in this part of the state. As shown in Figure 2 only plunging anticlines, terraces and gentle domes have been recognized in that part of the area that has been mapped. The value of such structures is problematical. Gas and oil pools are sometimes associated with minor structural features of this type and precedent in Oriskany development in Pennsylvania suggests that they afford the logical sites for test wells in this area.

It must not be assumed, however, that the surface structures are accurate reflections of the structure at the deep sand horizons. One of several relations may exist. Convergence between the key beds used in mapping the surface and the Oriskany may considerably shift the axes and change the outline of the structure at the deep horizon, or convergence may eliminate all traces of the surface structure at the deep horizon. And then, too, there is a more favorable aspect. Deformation may have been (probably was) progressive, in which event the deeper horizons may be found to be more strongly folded than are the surface formations and what appears at the surface as a terrace or nose may at depth be a closed structure.

As already suggested, the significance of surface structure is unknown in this

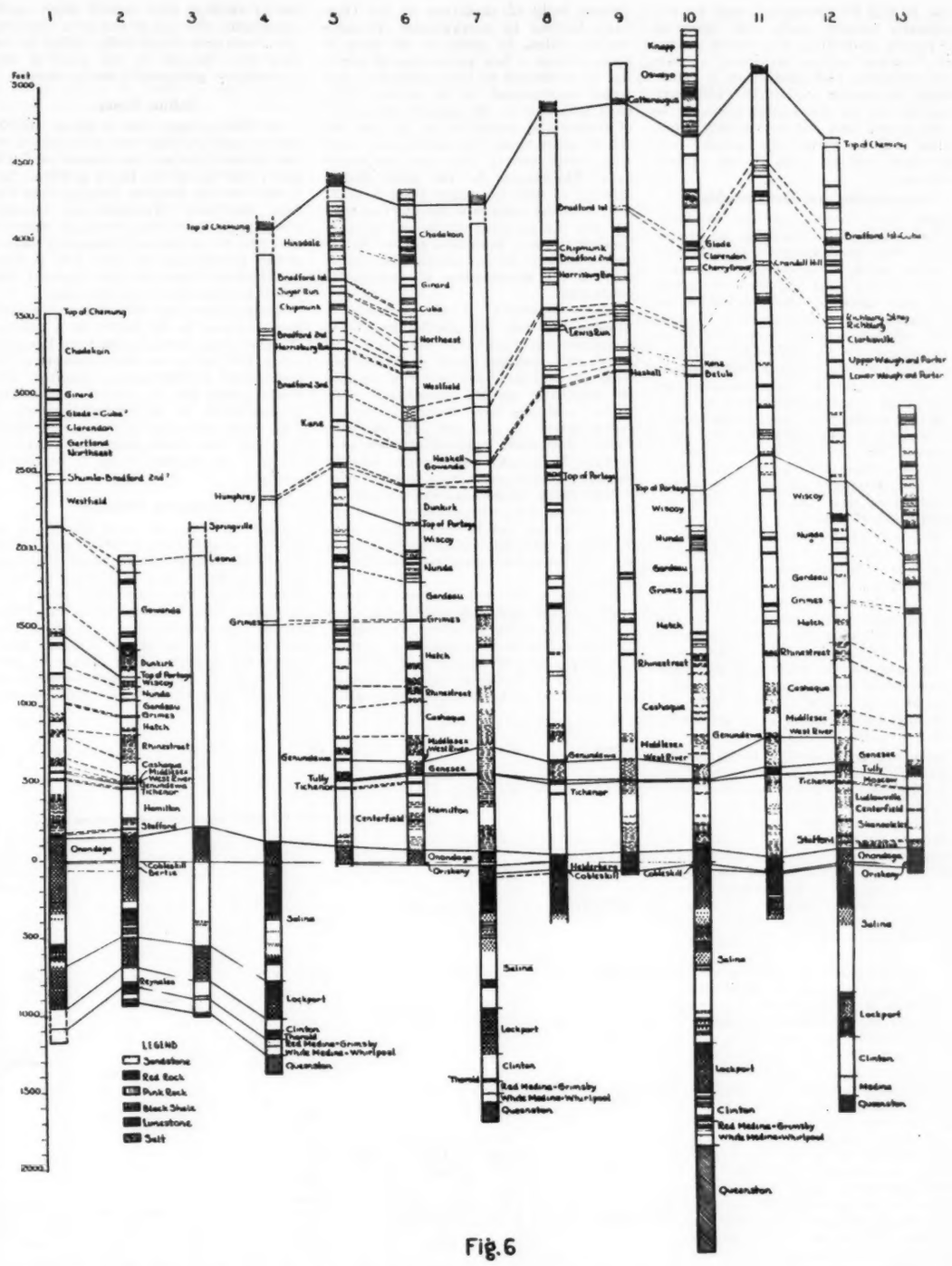

Fig. 6

TABLE 1—THICKNESSES IN FEET OF MAJOR SUBDIVISIONS OF DEVONIAN AND SILURIAN SYSTEMS*

Section Number	1	2	3	4	5	6	7	8	9	10	11	12	13
MISSISSIPPIAN SYSTEM													
Cussewago-Knapp	....	....	....	....	....	....	....	....	....	200	....	....	....
DEVONIAN SYSTEM													
Conewango group:													
Oswayo	....	....	....	....	....	....	....	....	....	170	....	....	....
Cattaraugus	....	....	....	....	....	105+			263+	327	56+	....	....
Chemung group	2,077	783+			1,930—	2,083		2,400	4,251	2,308	2,497	2,233	300+
Portage group	883	686			1,638	1,616		1,817		1,768	1,815	1,654	1,440
Genesee	abst.	abst.	1,851—	3,960	125	77	4,190	125	140	99	199	163	100
Tully	abst.	abst.			5	4		18	4	6	48	32	64
Hamilton group	420	341			437	490		458	465	440	532	465	452
Onondaga	154	160	225	133	101	78	70	48	59	82	27	26	95
Oriskany	abst.	abst.	abst.	abst.	15	17	20	abst.	abst.	abst.	5	5	21
Helderberg group	abst.	abst.	abst.	abst.	5+	....	60	57	60	20	66	abst.	abst.
SILURIAN SYSTEM													
Cobleskill	9	6				....	20	25	27	32	5	18	23
Salina group	667	490	548	744		....	850	317+	....	1,132	300+	824	33+
Lockport	274	195	226	248	....	....	300	....	....	320	....	296	....
Clinton group	140	121	119	126	....	....	175	....	....	176	....	248	....
Medina group	39+	108	91	107	....	....	140	....	....	166	....	134	....
ORDOVICIAN SYSTEM													
Queenston	....	18+	21+	129+	....	....	120+	....	....	688+	....	92+	....

*The position of the Devonian-Mississippian boundary in northwestern Pennsylvania has long been a mooted question. A summary of opinions is included in Bull. 114, Penna. Geol. Survey. The usage here is tentative.

area. It will be determined only by scientifically locating wells and recording the results of drilling. The sooner a relation between surface structure, subsurface structure, and production is established, the sooner exploration will have been put on an economical basis. It is to be hoped that all exploratory wells drilled will be completely sampled and that cores will be taken at the critical horizons.

Cementation and Metamorphism

Only drill cuttings of the Oriskany sandstone have been available for examination from northwestern Pennsylvania. In most cases, some calcium carbonate is present as a bond and some secondary silica has invariably been deposited on the original quartz grains. Both the calcium carbonate and the secondary silica have reduced the porosity of the rock and hence its capacity to hold fluids, either gas, oil, or water. In some instances the cementation has apparently been so thorough that no fluids are encountered when the horizon is penetrated by the drill. However, the fact that at a number of widely separated localities in Erie, Crawford and Mercer Counties considerable quantities of salt water have been reported from this horizon indicates that, in these areas at least, the Oriskany sandstone must still retain a considerable percentage of its original pore space.

The degree of cementation is closely related to the amount of metamorphism that the rocks have undergone. In the Appalachian region, the thrusts responsible for the folding and uplift of the strata at the close of the Paleozoic era were directed from the southeast. The degree of metamorphism that the beds have undergone, therefore, increases progressively in that direction.

Coals are particularly susceptible to metamorphic alteration. The percentage of fixed carbon computed on a pure coal basis in the case of bituminous and higher rank coals constitutes an excellent criterion for judging the degree of metamorphism that the associated strata have undergone, the fixed carbon increasing with the intensity of the metamorphism. In Figure 5 the progressive increase of the metamorphism in the coals toward the southeast is shown by the isocarb lines.

It will be noted that the Tioga gas pool, the most easterly of the Oriskany sand pools in Pennsylvania, is crossed by the 70 isocarb line. Although there has been considerable drilling on equally well defined structures to the east and southeast in both Tioga and Bradford Counties, no production has resulted. In every instance, although the Oriskany sandstone was present, it was found to be so tightly cemented that it was no longer capable of acting as a resevoir rock for the retention of fluids.

In Pennsylvania all the major gas pools productive in the upper Devonian and higher strata lie northwest of the 65 isocarb line. Only a few minor pools have been encountered between the 65 and 70 lines and the amount of gas that has been obtained from these strata southeast of the 70 line is almost negligible. Most of Pennsylvania's oil production has come from that area west and northwest of the 60 isocarb line. A few oil pools occur between the 60 and 65 lines and only very minor amounts of oil have been obtained from the area southeast of the latter line.

The intensity of metamorphism also increases with depth. The deeper sands, such as the Oriskany, can, therefore, be expected to have undergone a greater degree of metamorphism than the upper Devonian and higher sands. The possibilities of obtaining commercial quantities of gas from the Oriskany in that part of Pennsylvania lying southeast of the 70 isocarb line can, therefore, be considered to be only slight and from the Medina even less. Isocarb zone 70 may be thought of as dipping not vertically but northwestward. Favorability shifts northwestward as successively deeper horizons are considered.

Oriskany Sand

The probable existence of a nearly continuous body of sandstone at the Oriskany horizon in northwestern Pennsylvanian which, in parts of the area at least, retains a fair percentage of porosity, as witnessed by the amounts of salt water encountered in it, is the factor most favorable to the possible occurrence of commercial quantities of gas and oil. On the other hand, the sandstone is probably comparatively thin over the entire area. Thicknesses in the wells drilled through it thus far range from 5 to 27 feet, with the average somewhat less than 15 feet. Large total yields per acre of productive area, therefore, cannot be expected even if future prospecting should lead to the development of commercial production.

Most important of all probably is whether or not sufficiently prominent structures were present that acted as traps and brought about a segregation from the associated salt water of gas and oil migrating up the monoclinal slope when conditions were favorable for the accumulation of gas and oil deposits. Careful geological mapping supplemented perhaps by geophysical surveys will be necessary to discover any such structures, if they exist. Areas near the margins of the main sandstone body where this plays out up the dip and is sealed off by joining of the overlying and underlying rocks can also be looked upon as favorable teritory.

In spite of the fact that all the tests to date in the area under discussion have proved failures, the possibilities of eventually obtaining some commercial production of gas and oil in this part of Pennsylvania in the Oriskany can by no means be considered to be negligible. The number of tests to date is still quite small, considering the size of the area involved. Also, very few of the wells drilled in the past were located on the basis of any preliminary geological investigations.

Salina Group

In 1924 an open flow of about 240,000 feet of gas per day was encountered in the Salina between the depths of 7,428 and 7,440 feet in the Booth & Flynn No. 2 well of the Peoples Natural Gas Co. near McCance, Westmoreland County. The gas contained some hydrogen sulphide and had to be treated chemically before it was turned into the line. The horizon at which the gas occurred is about 600 feet below the top of the Onondaga.

Shows of gas and some salt water have been reported in the Salina in a number of other deep wells in western Pennsylvania but, with the above exception, no commercial production has resulted. The Salina group has not proved commercially productive in the adjacent states of New York and Ohio and it is not likely that any significant amounts of gas or oil will be obtained from it in Pennsylvania.

Lockport Dolomite

Gas and some oil were discovered in 1911 in a granular, porous dolomite in the Niagara limestone at South Newburg in the southern part of Cleveland, Ohio. This horizon has since been called the Newburg "sand." According to Van Horn at the type locality it occurs about 250 feet below the top of the Niagara limestone, which corresponds closely in geologic age to the Lockport dolomite of western New York and northwestern Pennsylvania. The Newburg sand has proved productive at several localities in Ohio.

In the R. C. Jameson well, Figure 8, in South Shenango Township, Crawford County, Pennsylvania, a little gas and a good show of oil were encountered at a depth of 4,080 to 4,096 feet and considerable salt water between 4,115 and 4,121 feet in the Lockport dolomite. The top of the dolomite occurs at about 3,925 feet and it is 285 feet thick. This horizon probably corresponds rather closely to the Newburg of Ohio. Salt water has also been reported in the Lockport in northwestern Pennsylvania in several other deep tests. The horizon can be considered to offer some possibilities as a potential source of gas and oil in this area.

Medina Group

The sandstones of the Medina group have been the great source of gas in western New York and central Ohio. In central Ohio some oil has also been obtained from them. The Medina has, therefore, been the objective of a considerable number of the deep tests undertaken in western Pennsylvania and wells have reached it in Erie, Crawford, Warren, McKean and Elk Counties. While no gas pools have been discovered in it thus far in northwestern Pennsylvania, a fair show of gas has been encountered at several widely separated localities. In the Miles farm well of the Netherlands Gas & Fuel Co. in Springfield Township, Erie County, an open flow of about 600,000 feet of gas per day was reported in 1932. A little water occurred below the gas. In the Ulf well of the Fidelity Petroleum Corp. at Tidioute in Warren County, ap-

Figure 8.

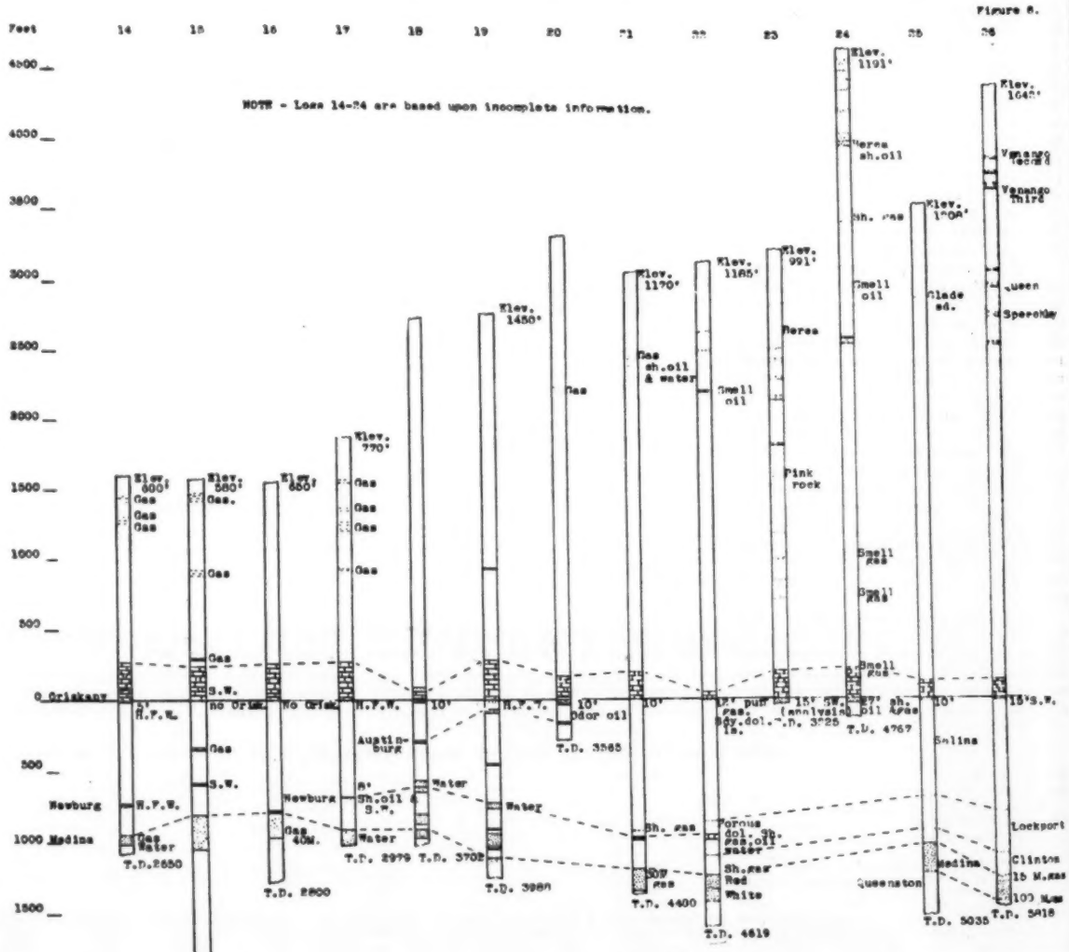

Fig. 8

(14) Frances Miles (Mrs. J. F. Miles) No. 1. Netherlands Gas & Fuel Co. (15) Presque Isle. City of Erie. (After Prosser, Bull. 15, Ohio Geol. Survey.) (16) Heard (Lewis Parker) No. 1. Northeast Heat & light Co. (17) Charles Berst No. 1. Kemrow Co. (18) J. Kirk No. 1. Pennsylvania Gas Co. (No. 401). (19) Chancy Blont No. 1. Wittmer Co. and Mellon-Pollock Oil Co. (20) George L. Eaton No. 1. United Natural Gas Co. (No. 3,219). (21) James Naylor No. 1. United Natural Gas Co. (No. 3,508). (22) R. C. Jamison No. 1. Anthony J. Wise. (23) H. Probst No. 1. Clyde Fisher. (24) J. Scott Munnell No. 1. James H. Duff and others. (25) Youngsville deep well. Star Oil Co.* (26) Ulf No. 1. (Tidioute well.) Fidelity Petroleum Co.*

*After C. R. Pettke, Bull. G.S.A., vol. 44, 1933.

proximately 15,000 feet of gas per day was encountered in the Red Medina and 100,000 feet in the White Medina, and in the James Naylor Lands well of the United Natural Gas Co. in Vernon Township, Crawford County, approximately 30,000 feet in the White Medina.

The Medina sandstones undoubtedly underlie all of western Pennsylvania. In as much as the interval between the base of the Onondago or the top of the Oriskany and the top of the Medina increases in a southeasterly direction, the regional dig of this formation toward the southeast is steeper than that of the Oriskany sandstone. Between the Miles and the James Naylor Lands well this interval increases from 937 to 1,187 feet in a distance of about 27 miles or an average of about 9 feet per mile, and between the Randall well of the Allegany Gas Co., south of Chautauqua, N. Y., and the Ulf well from 825 feet to 1,266 feet in a distance of 32 miles, or an average of 14 feet per mile.

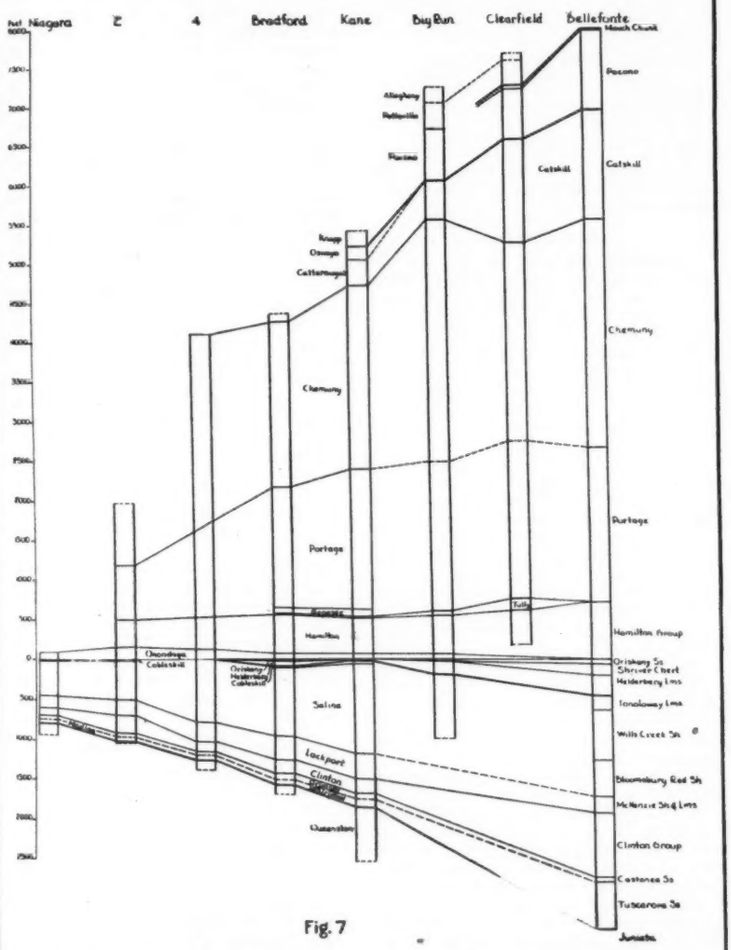

Fig. 7

It is not thought likely that oil in paying quantities is present in the Medina in northwestern Pennsylvania. The horizon can, however, be regarded as a possible source of gas and is worthy of further testing. In as much as it occurs at a considerably lower stratigraphic horizon than the Oriskany, it has no doubt undergone a greater degree of cementation and metamorphism. Two fragments obtained from the White Medina sandstone in the Kane deep well of the United Natural Gas Co. possessed total porosities of only 3.3 and 3.6 per cent by volume respectively. Whether or not it retains sufficient porosity any anywhere in western Pennsylvania to constitute a reservoir rock for commercial quantities of gas can only be determined by the drill. The northwestern counties would seem to offer the most favorable territory for testing.

Just how important a role the structure has played in the accumulation of gas in the Medina of western New York and central Ohio has not been definitely established. In many instances there is good evidence that the gas has been trapped in minor structural irregularities, such as gentle structural noses or bulges and terraces. In some cases, however, conditions of sedimentation resulting in local variations in porosity and permeability appear to have been the major factors in determining the location of the pools. It must also be kept in mind that the gas deposits of the Medina may have accumulated a considerable time before the earth movements took place that brought about the present structural features. Part at least of the cementation may also have occurred prior to this time. It is difficult to predict, therefore, to what extent the minor structural features, such as can be mapped on the outcropping beds in northwestern Pennsylvania, will be useful in locating favorable areas for testing the Medina. It is thought, however, that, on the whole, wells located on the basis of careful structural studies will have a better chance of success than those located at random. Convergence between the key beds mapped and the Medina should not be lost sight of in projecting structures on the latter.

METAL STATISTICS

The twenty-eighth annual edition of Metal Statistics-1935, now ready for distribution, contains an assortment of statistical information on ferrous metals, miscellaneous economic subjects and nonferrous metals. In the iron and steel section presentations of welded and seamless pipe production and world pig iron and steel production have been expanded. This shows an increase of oil country welded steel pipe or tubes from 16,066 gross tons in 1932 to 23,681 gross tons in 1933. Other increases in oil country goods are reported also. Metal Statistics is published by American Metal Market, 111 John Street, New York City, $2.

JOSEPH CALDWELL DIES

HARTELL, Alberta, May 4. — Joseph Caldwell, employe of Mercury Oils, Ltd., here, died recently, aged 73.

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Parsons is building a 7 hundred fifty-barrel cracking unit for Home Oil Refining Company in Montana.

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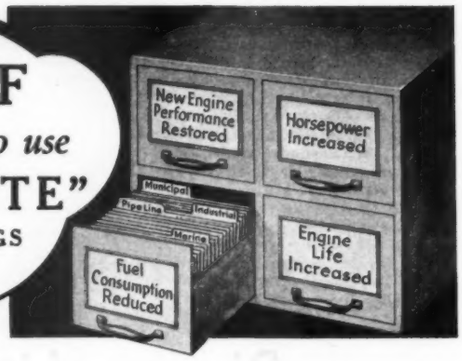

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Improved combustion and elimination of compression losses, which invariably follow the installation of COOKTITES, are accompanied by substantial fuel economy. COOKTITE *performance records are loaded with reports of such economies.*

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In eliminating "blow-by" and its accompanying flame impingement, which are the chief causes of abnormal cylinder and ring wear, COOKTITES give engines many added years of life. When used in connection with mechanically tensioned COOK'S GRAPHITIC IRON Plain Rings, it is not unusual to increase cylinder usefulness as much as 50%. *The records prove it.*

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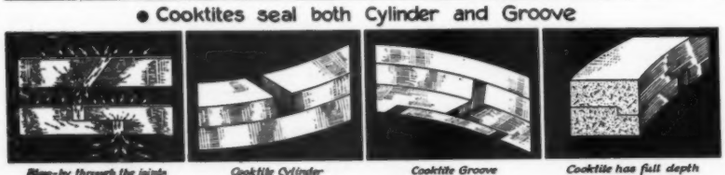
● Cooktites seal both Cylinder and Groove



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Improvements in Technique of Compressor Operation

(Continued from Page 55)

compressor rods with lower maintenance expense than will result from more lavish use of oil.

4. If above figures cannot be attained, the reason is to be found in some faulty mechanical condition, such as ring fit, ring clearance (either end or groove clearance) faulty alignment of piston or failure of force feed lubricator to deliver uniformly.

We find the following ring clearances necessary for four-cycle gas engines:

GROOVE CLEARANCE

Top or fire ring	Inches
No. 1	.008 to .010
No. 2	.006 to .008
No. 3	.004 to .006
No. 4	.004

END OF BUTT CLEARANCE

	Inches per diam. inch
No. 1	.006 to .008
No. 2	.005
No. 3	.004
No. 4	.004

The use of miter cut snap rings has been discontinued. Ring No. 3 is step cut. Rings No. 1, 2 and 4 are square cut.

Circulating Oils

Circulating oils need not have a viscosity of more than 150 seconds (Saybolt) at 100 degrees since bearings are kept very tight. Usually thoroughly dewaxed paraffin oils are preferable as they circulate more freely at the lowest anticipated engine room temperature, and are more easily cleaned, do not emulsify as readily, and have higher demulsibility. They also distribute more readily, replenishing the film promptly.

Since the circulating oil, unlike the force feed oil, is used over and over many times, whenever the circulating system at any plant fails to show at least three times as many horsepower hours of satisfactory service per gallon, a "Stop the Leak Campaign" is in order. Such a campaign means the careful going over of the following probable leakage sources:

1. Careless measurement and handling.
2. Porous castings, pipe or fittings.
3. Crankcase leaks due to improper gaskets and unnecessary splashing.
4. Oil wiper rings to prevent crankcase oil being carried into compressor or power rod packing.
5. Excessive gallonage may be carried out daily in the wiping rags.

An excellent method of locating such oil losses is to refrain from wiping up waste oil until the exact source of the loss is determined and necessary steps taken to prevent recurrence of loss.

Having found that an oil suitable for cylinder lubrication was entirely unsuited for bearing lubrication as well as uneconomical, and that a good circulating oil could not properly lubricate the power cylinders and increased maintenance cost more than offset any saving due to lower price per gallon, we venture the following conclusion:

That an oil, in order to serve both purposes satisfactorily, would have to combine the characteristics of a 30 S.A.E. rating at 210° F., with those of a 10 S.A.E. rating at 100° F. No such oil was ever heard of until very recently. Oils having such a low viscosity index, so flat a temperature viscosity curve, have only recently been sponsored by research laboratories, and made commercially available, but at a premium price per gallon.

Necessity for Scale-Free Water

It has now become uniformly recognized that water having a hardness of more than three grains per gallon should be reduced by some means to less than that figure in order to keep the machinery scale-free. Some waters, of course, can only be treated chemically at a prohibitive cost, in which case, an enclosed system, or as close an approximation thereto as is possible, should be installed. In this connection, water which has been successfully treated with zeolite, or distilled water to which is added a corrosion inhibitor, whichever can be provided with the least expense, should be used for make-up purposes.

Records

The records of a compresor station or department are most essential in order to insure economical operation. The forms for recording the operating information should be simple but sufficiently detailed to give the complete and accurate story of the operation. These operating forms are comparable to the negative in photographic work. Unless the negative is clear the finished print will not clearly indicate how the compressor dollar was spent.

The two monthly operating record forms I show you, furnish the perinent details of the plant operation, which are entered daily on the sheet, and then forwarded monthly to the general office by the plant chief engineer. This furnishes a negative from which a clear picture of the plant's operation can be studied.

The responsibility of the supervisor is to develop the negatives, to bring about uniform results, to eliminate faulty practices, to prevent improper distribution of charges, and duplication of effort and expense. Our experience has been that the most constructive procedure to follow in bringing about uniform economy and efficiency is the compilation of the information obtained from the form "Monthly Operating Record" into a monthly summary of operation. Each plant is then furnished with a copy of this summary. This permits each plant chief engineer to measure his own accomplishment against that of other plants.

From the two forms shown in this paper it is also possible to determine in the general office the service hours made by the various engine parts, as their replacement is indicated on the "Monthly Repair Report." In addition to these two forms a brief synopsis of the operating changes or any deviation from routine is reported in a weekly progress letter.

These records are then compiled into an annual report in which each plant's current year's operation is compared to a five-year average, as well as to the entire system average. This information permits the steering of a true course and furnishes food for thought and discussion at the weekly plant engineers' meetings.

Weekly Engineers' Meetings

In our organization we have, for years, insisted that the chief engineer of each station designate a certain hour in which to meet with his three shift engineers. This permits of his laying before them any proposed change in routine, new and approved kinks in operation which are to be tried out, outlining any change in plan when the budget is being exceeded, or any program of any sort pertaining to the operation, which has been determined upon. This insures all three shift operators having the same understanding of things, and enables the chief engineer to be sure that all three thoroughly understand just what he wishes to be done and exactly what part each man is to play in that plan. It also offers a rare opportunity to air any fancied grievances, and has always promoted the best of harmony.

"TOO MANY YODOCKS"

The annual convention of the National Association of Purchasing Agents will be held at the Waldorf-Astoria Hotel in New York City, May 20-23. The general theme will be "National and International Governmental Policies as They May Affect Commodity Prices." V. A. Leslie, economist for American Petroleum Industries Committee, will give an address entitled "Too Many Yodocks" on Wednesday morning, May 22.

C. E. STALKER DIES

C. E. Stalker, president of the Penn-Tex Petroleum Co., Houston, Tex., died last week. Mr. Stalker was formerly in the oil business at Oil City, Pa., and spent a number of years in the Oklahoma fields before going to Houston three years ago.

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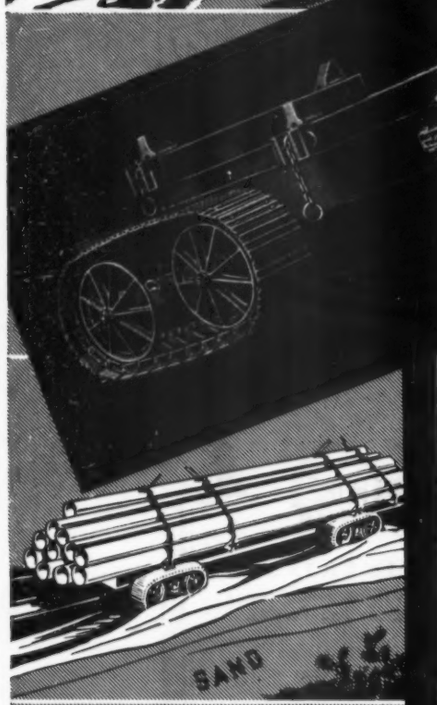

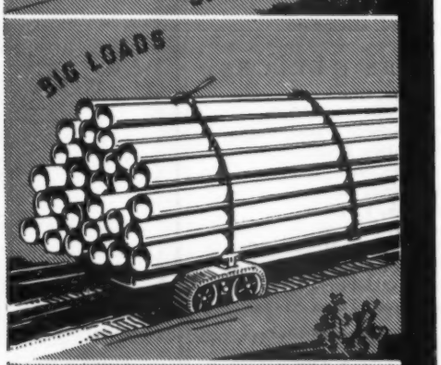

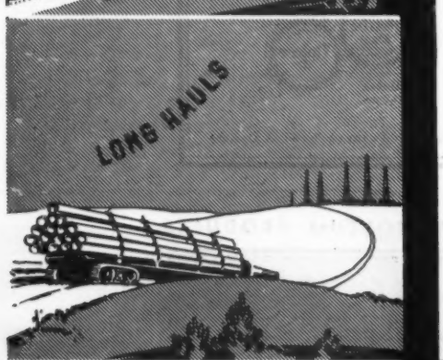

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Motor Fuel Volatility Trend on Atlantic Coast

By A. E. BECKER and A. D. BAUER
Standard Oil Development Co.*

Recently there has been considerable discussion about the trend in motor fuel volatility since 1931 when the Bureau of Mines semiannual motor gasoline surveys were discontinued. This paper is an attempt to bring the picture up to date so far as the Atlantic Coast of the United States is concerned. A study of the inspection data available in the Standard Oil Co. of New Jersey records indicated that various angles are well covered by analyzing the problem for four sections, Boston and vicinity, northern New Jersey, the Baltimore district and the Virginia-Carolinas region. For example, the motor fuels marketed in northern New Jersey are quite representative of those marketed either in Metropolitan New York or in the Philadelphia region. To cover benzol blends adequately Baltimore was selected. Extended winter and summer climatic conditions are covered respectively by Boston and the Virginia-Carolinas district.

We have included data as far back as July, 1929, to obtain sufficient overlap with the published semiannual reports of the Bureau of Mines. Only regular and premium grades have been considered because of the relatively small volume of third-grade motor fuel marketed in this territory.

Although some companies market spring and fall grades which differ definitely from either the summer or winter corresponding grades our study is limited to the latter. This has been done for several reasons. In each district both winter and summer grades are used at least three months. This insures the securing of data representative of these two seasons. Whether a company has special spring and fall volatility specifications or not there is a gradual transition from winter to summer grades or vice versa. This is due to the relatively short spring and fall periods and the gradual change in motor fuel volatility in storage and distributing tanks when changing a grade seasonally. Moreover there is no single date on which all companies make these seasonal changes. This renders it almost impossible to secure data that would be representative of the spring and fall seasons. As will be seen later the volatility spread of either summer or winter grades is in general considerably greater than the difference in volatility between the averages for the summer and winter fuels.

Fortunately data for 6 to 12 fuels representative of the grade, locality and year, both winter and summer, were available for the period 1929 to date. At least six and in most cases 10 to 12 fuels were used in preparing the averages. While sales volume guided the selection of samples when the surveys were made, we have made no attempt at weighting the data. In no case has more than one sample per company grade been used.

The data are shown in Tables 1 to 5. In the first four are tabulated the average vapor pressure and distillation characteristics for the four districts, both winter and summer, for both regular and premium grades of fuel.

The volatility extremes in comparison with the respective averages of the first four tables are shown in Table 5 for the summer of 1934 and the winter of 1934-35.

Discussion of Data

For the most densely populated area of the United States the volatilities of the averages of the regular and the premium motor fuels did not increase materially during 1929 and 1930. This period was followed by a marked increase to a higher level during 1933. After some recession the trend appears to have been definitely upward again the past winter.

For Boston and vicinity the same stationary level is apparent, since which time the trend has been definitely upward. The same observations apply to the regular grade fuels of the Baltimore district. For the premium grades of the latter locality the stationary period was of longer duration. This appears to be a direct result of the local distribution of benzol fuels. The distillation characteristics of commercial benzol are such that about 90 per cent distills below 212° F. It follows that benzol blends will show relatively high "fills" at the 212° F. distillation point. This is effectively exemplified by the sharp dip in 1930 in the 212° F. curve for the summer premium fuels. Our original data show that a fuel, which had previously been and which was subsequently a typical benzol blend, was very low at the 212° F. point at that time and that this deficiency accounted in large part for the dip.

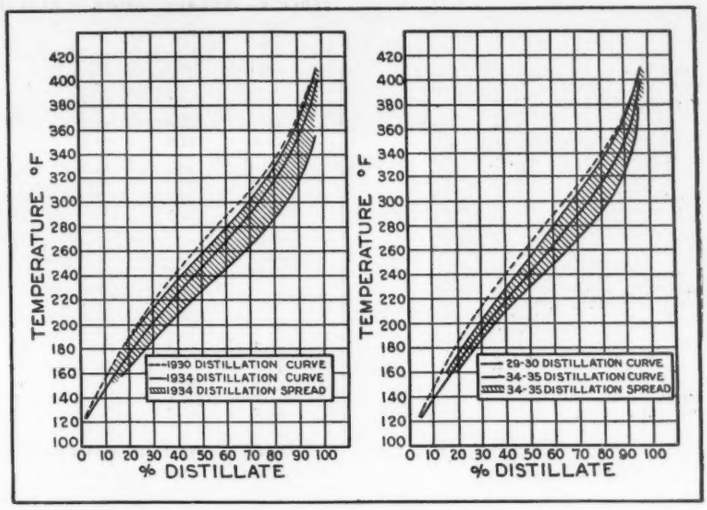
The general trend in the southern district is somewhat more complex. While the trend for the regular fuels is definitely upward, this is not the case for the premium fuels. At 158° F. there was practically no change in the latter for the summer seasons but there was a sharp increase in volatility at the higher temperatures in 1931, subsequent to which time there has been practically no change. For winter, the volatility trend of the premium grades was definitely downward from 1930-31 to 1932-33. A return to the level of 1930-31 has since occurred.

The tables of the Bureau of Mines' report previously referred to, show that there was little change in the 50 per cent distillation point during the period 1919 to 1931. Our curves, Figures 1 to 4, show that the average volatility increase in the four districts under discussion was most pronounced at 212° F. and 284° F. This is significant. It means that there has been a decided improvement in the average fuel as regards distribution of the charge to the engine cylinders, with consequent improvement in general performance. That there has been a less marked upward trend at 158° F. is largely attributable to the necessity of providing insurance against the possibility of vapor lock. In passing it might be pointed out that this possibility on the warmer winter days definitely limits the amount of light ends that can be utilized to provide easy cold weather starting.

The general increase in volatility since 1919 appears to have paralleled the development of cracking operations, that is, the type and the increase in the percentage of cracked stocks used in motor fuels. As gasoline demand increases the proportion of cracked to straightrun stocks will logically increase. This is particularly true if crude supplies should diminish or lag behind gasoline demand. It appears that the present volatility of the average motor fuel will not diminish in the near future, but if anything may increase. This should serve as a guide to the automotive engineer as to the type of fuel that is likely to be available.

Perhaps a better picture of the general increase in volatility is obtained from Figures 1 and 2 for northern New Jersey. The heavy solid curves represent the averages of the regular fuels for the summer of 1934 and the winter of 1934-35 respectively, while the broken line curves represent the same for the summer of 1930 and the winter of 1929-30. It will be noted that there has been a definite shift to the right, that is to higher volatility throughout the entire distillation range. In terms of per cent distillate this is most marked in the middle regions. From an increase of 3 to 4 per cent distillate at 158° F. the curves diverge to a maximum of about 10 per cent distillate at 284° F. They then converge again as the endpoints are approached.

Comparison of this five-year increase in volatility with the shaded portions of Figures 1 and 2 reveals another interesting feature. These areas show the spreads for the entire distillation range during the past year and were obtained by plotting boundary curves through the minima and maxima at each test temperature of all samples inspected. Throughout the distillation range the spread for summer is considerably larger than the average increase in volatility just discussed. The same is also true for the winter at 257° F. and higher temperatures. This would seem to refute the general impression that there are no marked differences in motor gasolines commercially available.



Trend of motor fuel volatility in Atlantic Coast States showing difference between summer and winter grades

*Presented before annual meeting of the Natural Gasoline Association of America in Tulsa.

TABLE 1—AVERAGE MOTOR FUEL VOLATILITY DATA—BOSTON, MASS.

Summer

Year	Regular 1929	1930	1931	1932	1933	1934	Premium 1929	1930	1931	1932	1933	1934
Reid V.P., pounds	....	....	....	....	....	8.0	....	....	....	....	....	7.4
Per cent distilled at 122° F.	....	....	3.2	2.8	2.5	3.0	....	....	3.0	3.6	2.5	2.4
140° F.	7.0	6.9	7.3	8.0	7.3	7.8	6.9	6.8	7.4	8.6	6.7	7.2
158° F.	11.2	11.6	11.9	12.8	12.5	14.1	13.1	12.0	12.3	14.4	12.8	13.7
212° F.	28.4	28.3	28.9	31.0	32.0	35.3	32.2	30.7	34.5	34.6	35.3	38.8
257° F.	....	....	....	....	52.3	57.0	....	....	....	....	56.0	60.9
284° F.	59.6	58.9	60.7	63.6	65.5	69.0	66.2	62.4	66.1	68.0	68.3	73.7
356° F.	88.0	88.2	89.6	90.0	90.8	91.8	90.9	90.6	91.4	92.5	92.3	94.6
F.B.P., °F.	410	402	397	403	405	402	401	398	389	389	399	392
Per cent recovery	98.2	98.0	98.0	97.6	97.6	97.8	98.2	97.7	97.7	97.9	97.8	98.0

Winter

Year	Regular 29-30	30-31	31-32	32-33	33-34	34-35	Premium 29-30	30-31	31-32	32-33	33-34	34-35
Reid V.P., pounds	....	....	....	....	9.1	9.5	....	....	....	....	8.0	8.3
Per cent distilled at 122° F.	....	4.2	3.6	3.8	4.5	5.2	....	4.3	3.8	3.6	3.3	3.7
140° F.	8.4	8.7	8.5	9.0	10.1	11.2	9.9	8.9	8.3	8.8	8.3	9.4
158° F.	13.9	13.7	14.1	14.9	16.1	17.2	16.1	14.6	13.9	14.0	15.0	15.8
212° F.	31.2	30.6	31.9	33.8	36.5	37.6	36.1	33.1	35.9	36.9	39.6	44.2
257° F.	....	....	....	....	57.9	57.5	....	....	....	....	60.8	66.7
284° F.	61.6	59.9	63.4	66.4	69.7	69.3	66.5	67.0	66.5	68.3	73.0	77.9
356° F.	88.9	88.5	89.7	92.5	91.9	91.7	90.1	92.7	91.6	92.7	93.7	94.7
F.B.P., °F.	399	402	401	394	401	395	401	391	395	389	391	391
Per cent recovery	97.5	97.9	98.0	98.0	97.1	96.7	97.6	97.5	98.1	97.7	97.5	97.6

(Continued on Next Page)

TABLE 2—AVERAGE MOTOR FUEL VOLATILITY DATA—NORTHERN NEW JERSEY

Summer

	Regular						Premium					
Year	1929	1930	1931	1932	1933	1934	1929	1930	1931	1932	1933	1934
Reid V.P., pounds	....	7.2	7.8	8.5	9.0	8.7	....	6.9	7.5	7.9	9.0	8.5
Per cent distilled at 122° F.	....	1.7	2.0	3.0	3.4	2.3	....	1.6	2.2	2.3	3.4	2.9
140° F.	....	5.8	6.2	8.2	8.1	7.0	....	5.7	6.7	7.1	8.3	6.9
158° F.	10.7	10.7	11.8	13.8	14.9	13.2	13.4	11.0	12.6	13.3	14.6	12.5
212° F.	26.9	27.6	29.2	32.9	34.8	33.8	34.6	30.4	33.1	33.8	36.5	33.9
257° F.	....	....	....	....	55.2	54.7	....	....	....	....	59.4	55.3
284° F.	56.9	57.3	60.7	62.5	67.5	66.9	67.7	62.6	67.2	67.7	71.4	68.4
356° F.	86.5	86.2	88.5	88.5	90.5	91.3	90.5	87.6	91.8	91.5	92.4	92.3
F.B.P., °F.	410	407	405	403	404	400	399	404	394	392	387	390
Per cent recovery	96.3	96.6	97.2	97.2	97.0	97.3	96.9	96.8	97.3	97.2	97.0	97.3

Winter

	Regular						Premium					
Year	29-30	30-31	31-32	32-33	33-34	34-35	29-30	30-31	31-32	32-33	33-34	34-35
Reid V.P., pounds	....	8.0	9.4	9.2	9.3	9.7	....	7.5	8.7	9.2	8 2	8.7
Per cent distilled at 122° F.	....	3.5	4.5	5.5	4.2	4.6	....	3.2	4.3	4.1	2.6	3.4
140° F.	....	8.1	9.8	11.3	9.6	10.5	....	7.9	9.5	9.8	7.5	9.0
158° F.	12 7	13.3	15.1	17.3	15.9	17.1	14.0	13.6	15.5	16.0	14.1	16.2
212° F.	29.4	29.5	33.0	36.5	36.3	37.9	34.0	32.8	35.4	37.0	36.2	41.0
257° F.	....	....	....	....	59.9	57.9	....	....	....	....	58.1	63.5
284° F.	60.0	58.2	63.4	67.2	69.0	69.7	66.1	64.5	68.3	70.5	70.4	74.7
356° F.	86 5	86.5	88.5	90.4	91.6	91.6	88.5	88 8	91.7	92.8	92.3	93.4
F.B.P., °F.	407	408	405	401	399	395	400	401	397	390	397	389
Per cent recovery	96.7	96.7	97.1	97.0	96.9	96.9	97.1	96.5	97.6	97.1	97.2	97.4

TABLE 3—AVERAGE MOTOR FUEL VOLATILITY DATA—BALTIMORE, MD.

Summer

	Regular						Premium					
Year	1929	1930	1931	1932	1933	1934	1929	1930	1931	1932	1933	1934
Reid V.P., pounds	....	....	7.8	8.9	8.1	8.9	....	....	7.2	7.9	8 4	7.9
Per cent distilled at 122° F.	....	1.6	2.8	3.7	1.8	3.2	....	1.2	2.3	3.2	2.0	2 0
140° F.	....	5.6	7.2	8.5	6.9	8.4	....	4.7	6.5	6.9	7.4	6.3
158° F.	9.1	10.5	12.1	13.7	12.8	14.6	11.8	9.9	12.3	12.8	13.7	12 4
212° F.	24.7	24.6	28.0	30.7	31.7	34.5	34.9	30.5	35.0	34.5	36.3	40.4
257° F.	....	....	....	....	....	55.1	....	....	....	....	....	58.7
284° F.	55.6	56.2	57.5	61.4	64.0	67.2	65.5	63.7	64.9	65.3	67.7	70.2
356° F.	84.8	85.7	87.4	88.5	89.4	90.8	88.9	88.1	90.0	89.9	90.7	91.9
F.B.P., °F.	415	405	405	401	403	397	401	404	401	400	400	396
Per cent recovery	96.3	96.8	97.3	97.2	97.1	96.8	96.7	97.1	97.6	97.5	97.1	97.4

Winter

	Regular						Premium					
Year	29-30	30-31	31-32	32-33	33-34	34-35	29-30	30-31	31-32	32-33	33-34	34-35
Reid V.P., pounds	....	....	9.1	8.3	10.0	10.7	....	....	8 0	7.3	8.0	9.3
Per cent distilled at 122° F.	....	2.8	4.1	3.2	5.4	5.8	....	1.7	2.5	2.2	2.9	4.2
140° F.	....	6.8	8.9	8.1	11.1	12.1	....	5.6	7.4	6.6	7.8	10.0
158° F.	12 8	11.4	14.1	14.0	17.5	18.8	11.8	11 2	13.3	12.5	14.2	17.2
212° F.	27.9	27.9	31.3	33.9	37.5	38.5	34.3	35 4	34.9	35.1	41.7	40.6
257° F.	....	....	....	....	56.6	57.4	....	....	....	....	60.7	60.7
284° F.	57.9	58.6	61.9	64 5	67.8	68.9	62.6	67.6	65.7	67.8	70.9	71.1
356° F.	85.2	87.1	88.2	89 2	91.3	91.6	86.3	90.9	90 0	91.0	92.6	92.1
F.B.P., °F.	411	404	402	400	393	395	410	394	399	396	393	388
Per cent recovery	96.5	97.0	97.3	97.4	96.8	96.6	96.9	97.4	97.5	97.5	97.6	97.0

TABLE 4—AVERAGE MOTOR FUEL VOLATILITY DATA—VIRGINIA, NORTH CAROLINA AND SOUTH CAROLINA

Summer

	Regular						Premium					
Year	1929	1930	1931	1932	1933	1934	1929	1930	1931	1932	1933	1934
Reid V.P., pounds	....	....	7.5	7.6	....	8.2	....	....	7 1	7.1	....	7.2
Per cent distilled at 122° F.	....	1.8	2.2	1.9	....	2.2	....	1 1	1.8	1.4	....	1.7
140° F.	....	6.2	6.4	6 3	....	7.0	....	4.6	6.1	5.5	....	5.9
158° F.	9.6	11.3	11.6	12.1	....	13 2	10.5	10.8	11.8	11.3	....	10.4
212° F.	25.3	27.8	28.8	31.6	....	33.9	30.1	31.6	34.2	33.0	....	34.1
257° F.	....	....	....	....	....	55.8	....	....	....	....	....	55.2
284° F.	54.8	57.4	59.6	63.7	....	68 6	62.0	63.1	67.6	68.3	....	67.6
356° F.	85.2	86.1	88 6	89.7	....	91.6	88.2	88.7	91.9	91.9	....	91.4
F.B.P., °F.	412	406	406	400	....	394	398	402	398	395	....	400
Per cent recovery	96.4	96.8	97.8	97.2	....	97.6	97.1	96.9	97.6	97.5	....	97.8

Winter

	Regular						Premium					
Year	29-30	30-31	31-32	32-33	33-34	34-35	29-30	30-31	31-32	32-33	33-34	34-35
Reid V.P., pounds	....	....	8.1	9.0	9.0	9.5	....	....	6.9	7.4	7.6	8.1
Per cent distilled at 122° F.	....	3.5	3.1	4.9	4.1	4.8	....	2.3	2 0	2.5	2.0	2.5
140° F.	....	8.4	7 4	10.3	9.6	10.8	....	7.0	5.7	6.9	6.1	8.1
158° F.	13.5	13.9	12.7	15.9	15 7	17.5	15.9	13 4	11.3	12.5	12.2	14.8
212° F.	28.6	29.8	30.4	33.9	36.0	38.2	35.5	38.1	35.3	32.5	36.5	39.2
257° F.	....	....	....	....	56.7	58.5	....	....	....	....	58.2	60.6
284° F.	54.8	58.5	61 4	64.0	69.1	70 1	66.0	72.2	68.7	67.3	70.1	71.8
356° F.	85.5	88.2	89.1	88.7	92.2	92.2	88.3	93.3	92.0	91.4	92 4	92.1
F.B.P., °F.	407	400	406	409	396	395	400	386	397	395	395	390
Per cent recovery	96.8	96.7	97.6	97.5	97.1	97.1	96.0	97.5	97.6	97.5	97.4	97.4

TABLE 5—CURRENT MAXIMUM-MINIMUM MOTOR FUEL VOLATILITY DATA

Boston, Mass.

	Regular						Premium					
	Summer, 1934			Winter, 34-35			Summer, 1934			Winter, 34-35		
	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.
Reid V.P., pounds	7.1	8.0	9.3	7.3	9.5	10.7	6.6	7.4	8.6	7.0	8.3	10.1
Per cent distilled at 158° F.	10.5	14 1	20.0	11.0	17.2	21.0	10.0	13.7	17.5	13.5	16.8	23.0
212° F.	31.5	35.3	43.0	31.5	37.6	43.0	32.0	38.8	71.5	33 5	44.3	74.5
284° F.	61.0	69.0	82.0	66.0	69.3	75.0	65.0	72.7	88.0	67.0	77.3	91.5
356° F.	86.0	91.8	97 5	89.0	91 7	94.5	89.0	94.0	96.5	89.5	94.7	97.5
F.B.P., °F.	364	402	424	376	395	408	380	393	410	350	381	406

Northern New Jersey

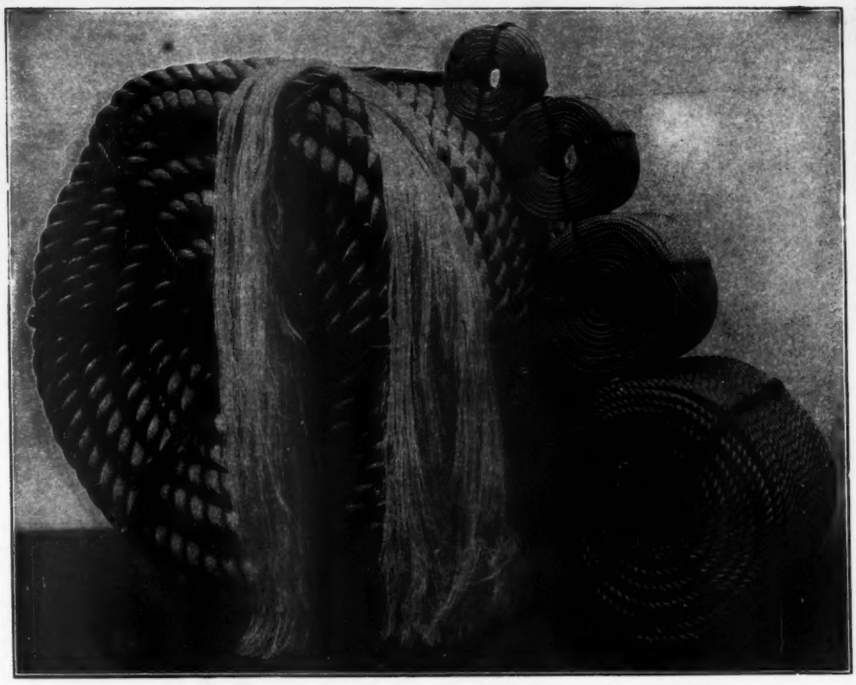
Reid V.P., pounds	7.7	8.7	9.6	8.5	9.7	11.6	7 7	8.3	9.4	6.5	8.7	10.0
Per cent distilled at 158° F.	10.0	13.2	16.5	15.5	17.1	20.0	10.5	12.5	18.0	12.0	16.2	22.5
212° F.	29.0	33 8	42.0	35.0	37.9	40.5	30.5	33.9	38.5	33.5	41.0	53.0
284° F.	62.0	66.9	80.0	63.5	69.7	78.5	63.0	68.4	78.0	65.5	74.7	88 5
356° F.	88.0	91.3	97.0	87.0	91.6	95.0	88.5	92.2	95.5	89.5	93.4	97.5
F.B.P., °F.	363	400	418	376	395	410	376	398	424	373	389	408

Baltimore, Md.

Reid V.P., pounds	7.7	8.9	10 3	9.6	10 7	12.7	6.4	7.9	8.7	8.2	9.2	11.5
Per cent distilled at 158° F.	11.0	14.6	20.0	15.5	18.8	22.0	5 5	12.4	16.0	13.0	17.2	20.5
212° F.	30.5	34.5	46.0	34.0	38.5	46.0	29.0	40.6	62.0	35.0	40.6	55.0
284° F.	61.0	67.2	80.0	62.5	68.9	79.0	63.0	70.2	85.0	64.0	71.1	90.0
356° F.	88.0	90.8	96.0	89.0	91.6	94.5	89.0	91.9	95.0	87 5	92.1	96.0
F.B.P., °F.	387	397	407	379	395	414	377	396	412	338	388	408

Virginia, North Carolina and South Carolina

Reid V.P., pounds	7.5	8.2	9.5	8.5	9.5	10	5.9	7.2	8.8	7.3	8.1	9.0
Per cent distilled at 158° F.	11.5	13.2	16.5	14.0	17.5	20.5	8.0	10.4	14.0	10.5	14.8	21.0
212° F.	29.5	33.9	42.5	34.5	38.2	42.5	30 0	34.1	43.0	33.0	39.2	53.0
284° F.	60.5	68.6	80.5	65.0	70.1	77.0	61.0	67.6	77.5	63.5	71.8	88.5
356° F.	88 5	91.6	97.0	89.5	92.2	94.5	80.5	91.4	95.5	86.0	92.1	96.5
F.B.P., °F.	367	394	417	385	395	408	383	400	422	366	390	410



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Mid-Continent Refining Operations Remain Low

(Continued from Page 15)

NORTH LOUISIANA

Company and location—	Daily capacity	Aver. daily runs May	Aver. daily runs April
Acme Refining Corp., Monroe	100	50	50
Bayou State Oil Corp., Hosston	750	150	(*)
Griswold Refining Co., Shreveport	2,500	1,000	1,000
Louisiana Oil Refining Co., Shreveport, Bossier	30,000	18,000	18,000
Pelican Refining Co., Converse	100	50	50
Shoreline Oil Co., Lewis	1,000	900	900
Spartan Refining Co., Shreveport	12,000	(*)	(*)
Stanolind Oil & Gas Co., Vivian	3,500	2,000	2,000
Texas Co., Shreveport	7,000	(*)	(*)
Total	55,450	22,150	22,000

*Shut down.

KANSAS

Company and location—	Daily capacity	Aver. daily runs May	Aver. daily runs April
Barnsdall Oil Co., Wichita	4,000	3,000	3,000
Derby Oil Co., Wichita	8,000	6,000	6,000
Dickey Refining Co., McPherson	5,000	2,000	2,000
Eldorado Refining Co., Eldorado	5,000	3,500	3,500
Falcon Refining Co., Inc., Great Bend	700	500	500
Globe Oil & Refining Co., McPherson	10,000	10,000	10,000
Kanotex Refining Co., Arkansas City	12,000	6,000	5,000
Kansas Gas & Gasoline Co., Winfield	500	160	160
Kreuger Refining Co., Laton	150	50	50
National Refining Co., Coffeyville	6,500	4,000	4,000
Petroleum Products Co., Chanute	1,000	1,000	1,000
Phillips Petroleum Co., Kansas City	18,000	11,600	13,330
Security Petroleum Co., Chase	3,100	(*)	(*)
Shell Petroleum Corp., Arkansas City	20,000	17,000	17,000
Sinclair Refining Co., Coffeyville	12,000	9,000	9,000
Sinclair Refining Co., Argentine	9,500	7,500	7,000
Skelly Oil Co., Eldorado	23,000	15,000	16,000
Socony-Vacuum Oil Co., Inc., Augusta	16,000	14,500	14,500
Standard Oil Co. (Indiana), Neodesha	20,000	4,500	4,500
United Oil & Refining Co., Hutchinson	1,500	(*)	(*)
Vickers Petroleum Co., Potwin	3,500	2,300	2,500
Total	179,450	117,610	119,040

*Shut down.

EAST TEXAS

Company and location—	Daily capacity	Aver. daily runs May	Aver. daily runs April
Acme Refining Co., Gladewater	1,250	700	700
Adams Refining Co., Big Sandy	1,000	900	200
Alton Refining Co., Gladewater	1,500	200	(*)
American Oil Products Co., No. 1, Gladewater	1,500	500	550
Apex Refining Co., No. 1, Gladewater	4,500	800	600
Apex Refining Co., No. 2, Gladewater	2,000	700	300
Arrow Refining & Producing Co., Overton	5,500	2,220	500
Artex Refining Co., No. 1, Arp	2,000	(*)	(*)
Artex Refining Co., No. 2, Camp Switch	4,250	(*)	(*)
Atlantic & Gulf Refining Co., Kilgore	2,500	(*)	(*)
Beacon Oil & Refining Co., Henderson	4,000	140	140
Blue Diamond Refining Co., Gladewater	1,500	(*)	850
Bonsta Refining Co., Joinerville	500	(*)	(*)
Broadmoor Sales Co., Inc., Kilgore	4,000	1,200	1,000
C. L. & W. Refiners Corp., Gladewater	1,000	600	600
Cal-Cul Refining Co., Gladewater	500	(*)	(*)
Century Refining Co., Corsicana	2,500	500	(*)
Chief Refining Co., Gladewater	1,300	500	320
Condor Refining Co., Kilgore	2,000	100	120
Crystal Refining Co., Kilgore	1,000	500	(*)
Danciger Refineries, Inc., Longview	10,000	(*)	(*)
Deason Refining Co., Turner Town	500	(*)	100
East Texas Refining Co., No. 2, Longview	10,000	5,100	6,000
Elk Refining Co., Kilgore	4,000	900	1,000
Friar Topping & Refining Co., Friars Switch	2,000	(*)	(*)
Gilliland Refining Co., Gladewater	4,000	1,670	2,900
Gilmer Refining Co., Gladewater	1,000	(*)	(*)
Goldman Refining Co., Gladewater	1,250	(*)	(*)
Goodson, Gentry, Carles Refining Co., Gladewater	1,000	200	190
Gregg Oil Products Co., Gladewater	1,500	(*)	(*)
Hub Oil Refining Co., Reeds Switch	3,000	80	200
Humble Oil & Refining Co., Neches	5,000	500	250
Hunter & Knox Refining Co., Reeds Switch	750	(*)	(*)
Ideal Refining Co., No. 3, Gladewater	750	(*)	(*)
Jackson Refining Co., Gladewater	1,750	300	(*)
Johnson Refining Co., No. 1, Kilgore	1,200	(*)	(*)
Kent Refining Co., Angus	4,000	(*)	(*)
Kilgore Reclamation Co., Kilgore	2,000	(*)	(*)
Kiltex Refining Co., Kilgore	500	(*)	(*)
Lake Refining Co., Gladewater	2,000	1,000	1,800
Lapren Refining Co., Kilgore	2,500	800	1,060
London Topping & Refining Co., Overton	1,000	(*)	(*)
Lone Star Refining Co., Gladewater	2,000	2,400	2,000
Magnolia Petroleum Co., Corsicana	5,000	2,000	3,330
Master Petroleum Co., Waco	1,000	200	400
McKain Refining Co., Gladewater	1,500	1,000	700
McMurray Refining Co., Arp	4,000	(*)	(*)
Midwest Refining Co., Overton	3,000	400	400
Minerva Refining Co., Minerva	2,000	250	240
Model Oil & Refining Co., Reeds Switch	1,250	(*)	100
National Refining Co., Camp Switch	1,000	300	200
Ocean Refining Co., Kilgore	2,300	(*)	(*)
Oil Refineries, Inc., Overton	4,000	1,700	1,790
Outdoor Refining Co., Kilgore	900	(*)	(*)
Ozoso Refining Co., Friars Switch	12,000	600	650
Panama Refining Co., Kilgore	3,000	(*)	(*)
Pelican Refining Co., Gladewater	1,000	(*)	100
Phoenix Refining Co., Dallas	5,000	(*)	(*)
Pope Refining Co., Gladewater	1,500	(*)	(*)
Roco Refining Co., Kilgore	2,000	(*)	(*)
Simms Oil Co., West Dallas	4,000	(*)	(*)
Sinclair Refining Co., Camp Switch	5,000	2,000	2,000
Southern Oil Refining Co., Tyler	3,000	1,500	(*)
Southport Refining Co., Kilgore	4,000	800	3,300
Stag Refining Co., Kilgore	1,200	600	570
Supreme Refining Co., Gladewater	1,200	700	1,170
Texas Co., Dallas	16,000	11,000	11,000
Texas Oil Products Co., Gladewater	3,000	1,400	1,300
Texover Refining Co., Overton	3,500	700	450
Triangle Refining Co., Kilgore	3,000	400	370
Trio Refining Co., Arp	2,100	1,400	1,250
Tucon Refining Co., Gladewater	1,000	100	100
Tyler, Texas, Producing & Refining Co., Tyler	15,000	(*)	2,450
Tyreco Refining Co., No. 1 Arp	2,500	4,200	2,220
Tyreco Refining Co., No. 2, Overton	3,000	(*)	2,570
Union Refining Co., Kilgore	3,000	(*)	900
Upshur Refining Co., Gladewater	1,000	(*)	(*)
Utah Refining Co., Kilgore	2,000	230	1,470
Wabash Refining Co., Gladewater	1,000	(*)	(*)
Wairip & Stewart Refining Co., Omega	1,000	100	(*)
Wolfe Refining Co., Kilgore	1,000	(*)	(*)
Total	231,800	53,690	60,440

*Shut down.

SOUTHWEST TEXAS

Company and location—	Daily capacity	Aver. daily runs May	Aver. daily runs April
Amsco Refining Co., Mirando City	2,000	1,100	1,300
Bee Oil & Refiinng Co., Pettus	1,000	550	420
Capital Refining Co., Luling	2,500	(*)	(*)
Chapa Refining Co., Laredo	100	50	50
Citizens Refining Co., Luling	200	50	50
Humble Oil & Refining Co., San Antonio	5,000	2,500	2,400
Magnolia Petroleum Co., Luling	7,000	6,040	6,040
Pettus Refining Co., Pettus	1,000	750	750
Phoenix Refining Co., San Antonio	500	500	500
Pioneer Oil & Refining Co., Somerset	2,000	900	900
Rado Refining & Producing Co., McAllen	500	200	250
Texas Co., San Antonio	3,000	3,000	3,000
Texas Petroleum Products Co., Somerset	1,500	250	250
Total	26,300	15,890	15,810

*Shut down.

WEST TEXAS AND PANHANDLE

Company and location—	Daily capacity	Aver. daily runs May	Aver. daily runs April
Active Oil Co., Arno	1,500	(*)	(*)
Aero Refining Co., Pecos	220	100	100
Coltex Refining Co., Colorado	12,500	8,000	7,500
Concho Refining Co., San Angelo	250	100	100
Cosden Oil Co., Big Spring	12,500	6,000	5,500
Danciger Refineries, Inc., Pampa	6,500	5,000	5,000
Gibson Oil Corp., Magic City	250	(*)	(*)
Howard County Refining Co., Big Spring	1,500	300	300
Mertzon Refining Co., Mertzon	100	50	50
McNutt Refining Co., El Paso	2,000	750	600
Panhandle Refining Co., Kings Mill	2,000	1,400	1,250
Paramount Refining Co., San Angelo	2,000	(*)	(*)
Pasotex Refining Co., El Paso	14,000	6,700	6,700
Phillips Petroleum Co., Borger	50,000	19,350	20,000
Shamrock Oil & Gas Co., Sunray	2,000	1,500	1,500
Shamrock Oil & Gas Co., Meldavis	1,500	1,200	1,200
Sinclair Refining Co., El Paso	2,500	600	600
Texas Co., El Paso	2,000	900	900
Texas Co., Amarillo	4,000	3,000	3,000
West Texas Refining Co., Pecos City	6,000	(*)	(*)
Wickett Petroleum Co., Wickett	2,500	600	600
Total	125,820	55,550	54,900

*Shut down.

More Volatile Motor Fuels Could Be Used

(Continued from Page 14)

engine was modified as shown in Figure 4 and run without the hood, it was found that these mixture temperatures would be reduced about 50° F. In the paper given before the association last year[2] it was indicated that a decrease in the mixture temperature of 50° F. would increase the power output of the motor by about 12 per cent. The results which have been obtained so far in these road tests indicate that the improvement is at least equal to that expected from these laboratory results.

By the changes in the manifolding and cooling system as described and illustrated in Figure 4 it was found that the maximum speed of the car had been increased from 77.4 miles per hour to 80 miles per hour when using the same fuel with the same carburetor adjustment, but with the spark advanced 2 degrees further in order to take full advantage of the cool mixture and motor. This increase in top speed corresponds to an increase in maximum horsepower of from 81 horsepower at 77.4 miles per hour to 93 horsepower at 80 miles per hour or a gain in maximum horsepower at top speed of approximately 15 per cent.

TABLE 3—ACCELERATION TESTS

Speed, miles per hour	Fuel 1	Fuel 2	Fuel 3
10	15	14	15.8
15	16.6	16.3	19
20	17.9	16.9	21
25	19	18.9	22
30	19.4	19.1	21.7
35	18.8	18.6	21
40	18	18.1	20
45	17.2	17.4	19
50	16.3	16.7	17.8
55	15.5	16	16.7
60	14.6	15	15.6
65	13.8	14	14.2
70	13	13	13.4

This gain of 15 per cent is due to two factors, one of which is the increase in spark advance of 2 degrees (corresponding to an increase in compression ratio) which is equivalent to an increase in octane number of about four numbers or an increase in power output of about 2 per cent. The balance, or 13 per cent, is due entirely to the decrease in temperature of the mixture or the so-called increase in volumetric efficiency.

A comparison between Fuel 1 and Fuel 3 at top speed with the cold manifold, indicated a top speed of 80 miles per hour and a mileage of 9.6 miles per gallan when using Fuel 3, and a top speed of 80.22 miles per hour with a mileage of 10.2 miles per gallon when using Fuel 1 with all conditions the same except that the carburetor was properly adjusted for the fuel used. The top speed is practically the same but the mileage is noticeably better in the case of the more volatile fuel.

These top speeds tests were run with the hood removed from the engine in order to obtain better cooling. With the hood in place the speed could be increased about one-half to 1 mile per hour and the miles per gallon also increased about one-half mile per gallon.

The acceleration when using Fuel 1 which is sufficiently volatile to insure almost perfect distribution in all cases, was increased on the average about 20 per cent when using the cold manifold and low temperature cooling water as compared with the standard car. When using Fuel 3, the acceleration was about 10 per cent worse with the cold manifold than with the standard equipment due to the fact that this fuel does not possess sufficient volatility to give satisfactory distribution with the cold or hot manifold even when compensating carburetor adjustments are made. Comparison of Fuels 1 and 3 on the standard car with factory adjustment at an atmospheric temperature of about 60° F. indicates a gain in acceleration of about 45 per cent for Fuel 1 as compared with Fuel 3. When the carburetor is adjusted to give the best acceleration with satisfactory driving conditions on each of these fuels, an improvement of about 30 per cent in acceleration is obtained when using Fuel 1 as compared with Fuel 3.

Results

An interesting comparison between the gains in performance that may be obtained by the use of fuels of increased octane number when proper changes in the engine are made so as to take full advantage of the increased octane number, a series of accelerations were made with the same fuel but with the octane selector adjusted to correspond to the use of fuels of 43, 65 and 78 octane number. Using the operation corresponding to 43 octane number as a standard of comparison the average acceleration was increased 13.9 per cent with the adjustment corresponding to 65 octane and 16.2 per cent with the adjustment corresponding to a 78 octane number fuel. In the paper given last year laboratory tests indicated corresponding gains of 13 and 20 per cent respectively by the use of fuels of 65 and 78 octane number as compared with a fuel of 43 octane number.

BIBLIOGRAPHY

[1]The Oil and Gas Journal, Vol. 31, No. 35, page 14, January 19, 1933.

[2]"Potential Value of Motor Fuel as Determined by Octane Number and Total Volatility," Brown & Marshall, Thirteenth Annual Proceedings of the Natural Gasoline Association of America.

Chicago Market Is Improved by A.P.I. Fight on Government Interference

By SPECIAL CORRESPONDENT

CHICAGO, May 6.—The outlook for oil markets, already strong, was further improved here when American Petroleum Institute directors at their May 4 meeting took a firm attitude in opposition to threatening federal legislative tendencies. Moreover, leaving the directors' action out of consideration, markets continued in a healthy condition.

While gasoline showed no easing, attention was diverted from it to some extent by the showing made by the better grades of burning oils. In general, the whole list of the more common refined petroleum products was reflecting a firm, tight undertone. The additional three-tenths cent tank wagon and service station price advance on May 2 clinched and protected the recent tank car gasoline advances. In the opinion of many conservative observers it also prepared the ground for possible new spot market advances. Some refiners even now have advanced their tank car prices and will not retreat from the new levels.

Weather Unfavorable

The bad weather conditions have contributed the only jarring note. Low temperatures, much rain and even sleet and snow in the North have restricted motor traffic, and have kept road conditions unfavorable, especially in rural areas served mainly by secondary type roads. It remains a fact that gallonage totals of representative companies, both large and small, have been good on the whole. Shipments of some refiners have been exceptionally high for months, and the leading distributors have had fairly favorable reports. Many cars are on main traveled highways and tourists are beginning to come out. The general feeling is that if weather had not been poor, consumption would now be outstripping anything the industry has known by a large margin, at least in the central states area.

Jobbers Conservative Buyers

Jobbers have been conservative operators, in handling their storage accounts. They have refused to speculate on the market to any large extent, and in general they have kept their stocks low. They did order out large lots of material on their contracts to escape the April 18 increase in freight rates so far as possible, but they have not bought excessively to anticipate the tank car advances on the scale many expected. Incidentally, orders on contract after the rate increase took effect decreased to some extent and only in the last few days have been getting back up to expected levels after that dip. At the same time it cannot be said that jobbers are fighting the advances or attempting to retard the general market improvements. They simply are refraining from loading up.

Car lot marketers and brokers are finding it difficult to purchase materials for resale at prices much below the general quotations to the trade. Most refiners apparently are short of gasoline for spot market sale. This does not apply to all of them, for certain refiners are said to have accumulated more than desired; but it is clear there is no general surplus of material weighing down the market.

Kerosene and Tractor Fuels

The current bulge in kerosene is really a tardy recognition of values, in the opinion of some market authorities. The season has been late and May is witnessing a strengthening which normally develops in April. Refiners are now being pressed by jobbers and resellers for shipment of kerosene and tractor fuels and on the former many plants are a week to two weeks behind on shipments. Tractor distillates are receiving much atten-

(Continued on Page 78)

Crude Oil Prices

(Continued from Page 27)

Humble Oil & Refining Co. and Texas Co. Effective September 20 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Iles light (Sept. 29, 1933)	$.96
Iles, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.85
Fort Collins and Wellington, Colo. (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (May 1, 1934)	.70
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 29, 1933)	
See Stanolind Mid-Continent price schedule	
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Sept. 29, 1933)	.62
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Lance Creek (Dec. 16, 1932)	.92
Hudson (June 2, 1931)	.65
Lost Soldier (Sept. 30, 1933)	.88
Hamilton Dome, all grades (Feb. 16, 1935)	.57
Torchlight (Sept. 29, 1933)	1.18
Greybull (Sept. 29, 1933)	1.18
Pondera (Sept. 29, 1933)	1.25
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro. Hamilton Dome, Wyo., by Stanolind Oil & Gas Co. Pondera, Mont., by Ohio Oil Co. (Stanolind Oil & Gas Co., effective January 1, 1935, posted $1 per barrel in Pondera.)

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos, Urania, La. (Jan. 13, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.03
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Nov. 17, 1934)	1.03
Pleasant Hill, La. (Mar. 17, 1934)	1.03
Zwolle, La. (Mar. 17, 1934)	1.03
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.03
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Navada by Standard Oil Co. of Louisiana. Urbana posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co. Converse, Holly, Zwolle and Urbana by Standard Oil Co. of Louisiana; Elm Grove by Simmons Oil & Refining Co.; Pleasant Hill by Standard Oil Co. and Magnolia Petroleum Co.; Champagnolle by Standard Oil Co. and Lion Oil & Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective Feb. 4, 1935)

Bradford, Pa.	$2.35
Allegany, N. Y.	2.35

SOUTH PENN OIL CO.
(Effective Feb. 4, 1935)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.35
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.02
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.97
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.87
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.37

PENNZOIL CO.
(Effective Feb. 4, 1935)

Pennsylvania Grade Oil in National Transit Lines:	
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.)	$2.27
Group B (Includes Titusville district.)	2.26
Group C (Includes Turkey and Tidioute districts.)	2.25
Group D (Includes Bear Creek and Porkey districts.)	2.24
Group E (Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacey and Kinsua districts. Price depends on length of pipe line haul to plant at Oil City.	2.21

PURE OIL CO.
(Effective Jan. 4, 1935)

Cabin Creek, W. Va.	$1.82
Bradford Hollow, W. Va.	1.82
Kelly Creek, W. Va.	1.77

CREW-LEVICK CO.
(Effective Jan. 4, 1935)

Oil City-Titusville	$2.12

Middle Western States

OHIO OIL CO.

Lima (Feb. 1, 1935)	$1.15
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Western Kentucky (May 26, 1934)	1.03
Midland, Mich. (Sept. 30, 1933)*	1.02
West Branch, Mich.	.86
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.23

*Posted by Pure Oil Co. and Simrall Pipe Line Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted prices. West Branch, Mich., posted by Simrall Pipe Line Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted prices includes premium. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (May 21, 1934):†	
Clear naphtha	$2.55
Discolored naphtha	2.37
Crude oil, 50 gravity	2.19
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$1.01

*F.o.b. ship, based on March transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.65	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.65
17-17.9	.69	.65	.75	.76	.73	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.65	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.83	.87	.83	.85	....	.81	.82	.81	.66	....	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	....	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.83	.89	.93	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.93	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.96	1.00	....	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1.04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1.03	1.02	1.07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.05	1.09	....	....	....	1.04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.06
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.13	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1.18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1.21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.34	....	....	....	....	....

Additional Standard Oil Quotations

Mountain View—Effective July 3, 1934, the following are the prices of the Standard Oil Co. of California for its current purchases of crude oil at the well in the Mountain View Field: 14 to 19.9 degrees, 57 cents; 20-20.9, 58 cents; 21-21.9, 59 cents; 22-22.9, 61 cents; 23-23.9, 63 cents; 24-24.9, 66 cents; 25-25.9, 69 cents; 26-26.9, 72 cents; 27-27.9, 75 cents, 28-28.9, 78 cents; 29-29.9, 81 cents; 30-30.9, 84 cents; 31-31.9, 87 cents; 32-32.9, 90 cents; 33 degrees and above, 93 cents.

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—32-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shiells Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same price as Standard Oil Co. in all fields in which both purchases, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33--33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 26 degrees and over; Coyote Hills, 25 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 25 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

Plain Dealing Wildcat Proves Disappointment; Gas Company Has Million Dollar Program

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., May 6.—Twelve completions were reported from the North Louisiana and Arkansas area during the week and 10 locations were staked in the North Louisiana district, Arkansas failing to report a single new operation.

NORTH LOUISIANA

The northern part of Bossier Parish furnished the outstanding wildcat disappointment, a test to the Blossom sand. Plain Dealing Syndicate's No. 1-A Bollinger, Section 31-23-12, developed 40 thribbles of salt water on drill stem test from 2,773-90 feet and the well was abandoned in salt water at 2,804 feet. The wildcat is one of a series of failures located on a large block of acreage near the town of Plain Dealing. The operators have staked a new location and are rigging up No. 1 L. A. King in Section 36-23-13. In Caddo Parish, Gulf Refining Co.'s No. 4 Caddo Levee Board, Section 10-20-16, encountered salt water and was abandoned at 1,861 feet. H. J. Brothers and others' No. 1 L. E. Edwards, Section 29-9-13, in the Converse area of Sabine Parish, had a good show of oil but failed to make a commercial well at 2,015 feet.

A wildcat in the northwestern part of Bienville Parish will be closely watched during the next few weeks for possible Blossom production. M. V. Duncan and others' No. 2 Hutton, Section 4-18-7, has set 10-inch surface casing at 152 feet and is drilling at 2,020 feet. This is the second test on a good sized block of acreagea in that vicinity, and a number of core tests have been drilled since the completion of the first well to determine the base of the Can River formation.

Two wells in the Sliga gas area of Bossier Parish are nearing the recently discovered pay horizon around the 2,800-foot level. Triangle Drilling Co.'s No. 1-A State of Louisiana, Section 23-17-12, developed an estimated 1,000,000 feet of gas on drill stem test from 2,504-59 feet and is coring below 2,700 feet. United Gas Public Service Co.'s No. 1-A R. V. Kerr unit, Section 24-17-12, has set 9⅝-inch casing at 2,715 feet. The former well would extend production of this level about 1 mile southwest and the latter is about three-quarters of a mile south of production lines. It is stated that both wells will be drilled to the Ooolitic lime of the upper Trinity which is contacted around 4,400 feet in the Sligo area, if production is not satisfactory in the upper sand.

United Gas Expansion

The two leading gas areas in the northwestern part of the State, on what is known as the Sabine Uplift, seem destined to get a good drilling play throughout this year. Arkansas-Louisiana Gas Co. is constructing a 10-inch welded line from the Sligo Field to its main trunk line at Princeton in Bossier Parish, about 10 miles. The Rodessa Field, in the northwestern part of Caddo Parish, which has produced from the upper Trinity from 5,600 feet to 5,800 feet for five years will see more activity during the remainder of 1935 than since its discovery. United Gas Public Service Co. is planning to drill nine wells on its properties in that area, and also will enlarge its high pressure absorption plant at Rodessa to 90,000,000 feet daily, practically double its original capacity. United also plans the construction of a 12-inch line from the field to connect with another line near Belcher in Caddo Parish, a distance of 17 miles. It is reported the new development plans of this company in that area call for the expenditure of near $1,000,000 during 1935. The Arkansas-Louisiana Gas Co. also has large holdings in the Rodessa area. Two wildcats will be drilled in East Texas counties, one in Marion and one in Cass, reported to be located on a separate structure off the Rodessa Field, with good possibilities of oil production from the Trinity horizon.

In Catahoula Parish, George J. Phillipi has set 7-inch casing to test for shallow gas at 826 feet on his No. 2 Louisiana Central Lumber Co., in Section 2-9-5e. E. B. Bird and others' No. 1 A. D. Johns, Section 20-14-16, in the northwestern part of DeSoto Parish, has caused a mild flurry of excitement by reporting a good show of oil. The operators claim a test of 7 joints of 38 gravity oil from 2,580-2,630 feet and the wildcat is temporarily shut down before further testing. Clyde Crichton's No. 1 Friedman estate, Section 52-7-6, Natchitoches Parish, is arranging to set 8-inch casing at 1,300 feet to protect the hole, and will test a show of oil from 2,235-43 feet. The old total depth is 2,934 feet. Williams-Carroll & Day's No. 1 Armstrong and Murphy, Section 24-5n-1w, Rapides Parish, is drilling at 2,360 feet.

A wildcat in the western part of Webster Parish, Virgil Likens' No. 1 E. L. Stewart, Section 23-18-10, continues to encounter drilling troubles. After failing to sidetrack core head, arrangements are being made to skid over from 2,017 feet and start a new hole.

ARKANSAS

The Arkansas district turned in nine completions consisting of five dry holes and four small oil wells. In the Miller County Field, Ed Donohue's No. 2 Beck, Section 33-15-26, is pumping 300 bbls. daily from 2,923 feet. The Rainbow Field, Union County, furnished one small well from the red beds or what is termed locally as the Taylor sand. Alice-Sydney Oil Co.'s No. 2-B E. F. Gregory, Section 10-11-14, is pumping 35 bbls. of oil and 400 bbls. of salt water from 3,386 feet. In the same county, Reuter Oil Co.'s No. 1 J. L. Kinard, Section 32-18-14, is a 10-bbl. pumper from 2,196 feet, and same company's No. 2 Vines, Section 29-18-14, is pumping 18 bbls. from 2,216 feet. Three wells in the Rainbow Field, temporarily abandoned for several weeks, were definitely abandoned as salt water wells during the past week. All three were drilled by Lion Oil & Refining Co. and were abandoned in the recently discovered Taylor sand around the 3,400-foot level.

South of the Rainbow Field, Urbana County, Union Oil Co.'s No. 1 Union Saw Mill Co., Section 34-17-13, was abandoned as dry in hard lime at 4,214 feet. Kraft Oil Corp.'s No. 1 Rath and Cartier, Section 32-13-17, Ouachita County, was abandoned at 1,852 feet as a dry hole. The test was in the hot spot area, 5 miles west of Camden which furnished a small wildcat producer several months ago, but has failed to get another well out of numerous attempts.

The hope for deep production in South Arkansas has shifted to the Gulf Refining Co.'s No. 49 Lewis Werner, Section 5-16-16, in the Smackover area of Union County. The test is drilling in red sand at 5,399 feet. H. L. Hunt, Inc.'s No. 15 E. F. Gregory, Section 15-17-14, in the Rainbow Field, has plugged back to 4,000 feet and perforated casing at 3,458 feet. It developed salt water and is now shut down waiting orders with the old total depth at 6,911 feet in rock salt. In the old East Field of Union County, Earl Patterson's No. 1 C. L. Smith, Section 29-17-14, developed 100 feet of oil on drill stem test from 2,890-2,902 feet, coring 5 feet of sand. Seven-inch casing has been set at 2,897 feet to test the show.

Estimated Production

Estimated daily gross production, all companies, week ending May 3:

NORTH LOUISIANA

	Bbls.
Bellevue	700
Caddo, light	4,880
Caddo, heavy	2,195
Converse	1,015
Cotton Valley	445
DeSoto and Red River	1,470
Elm Grove	450
Haynesville	3,560
Holly	155
Homer	2,700
Pleasant Hill	185
Sarepta-Carterville	520
Urania	3,050
Zwolle	2,040
Total	23,365

SOUTH ARKANSAS

Champagnolle	2,450
El Dorado	2,200
Lisbon	310
Miller County	1,835
Nevada	900
Smackover, light	2,325
Smackover, heavy	18,625
Stephens	615
Urbana	2,200
Total	31,510

ROCKY MOUNTAIN RUNS

Estimated daily average production for the week ending May 4, follows:

WYOMING

	Bbls.
Salt Creek	17,420
Big Muddy	1,660
Badger Basin	30
Black Mountain	220
Byron	1,180
Dallas Derby	640
Dutton Creek	50
Elk Basin	40
Ferris	20
Frannie	110
Garland	1,490
Grass Creek	Shut in
Hamilton Dome	1,510
Hudson	300
LaBarge	1,110
Lance Creek	2,470
Lost Soldier	1,590
Mule Creek	Shut in
Midway	70
Notches	Shut in
Oregon Basin	2,020
Osage	740
Pilot Butte	30
Rock River	1,500
South Casper	Shut in
Poison Spider	70
Teapot	30
Total Wyoming	34,290

MONTANA

Buckley-Border	270
Cat Creek	760
Cut Bank	4,600
Kevin-Sunburst	3,750
Lake Basin	50
Pondera	1,300
Total Montana	10,730

COLORADO

Florence	230
Ft. Collins and Wellington	420
Iles Dome	3,660
Moffatt	400
Orchard	80
Rangely	80
Tow Creek	170
Total Colorado	5,040

NEW MEXICO

Artesia	690
Cooper Area	5,020
Eunice Area	6,640
Hobbs	30,820
Hogback	200
Hospah	Shut in
Jal	3,420
Lea Area	1,370
Maljamar	1,930
Rattlesnake	710
Table Mesa	100
Total New Mexico	50,900
Total Rocky Mountain Region	100,960

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

AVOYELLES PARISH

Bell Oil Co.'s No. 2 Thompson-Koltz, 450 ft. S, 350 ft. E, NW cor. Sec. 11-2n-5e. Drlg. 3,756.

Southern Star Pet. Co.'s No. 1 O. G. Boyette, Sec. 28-3-5e. S.D. for high wtr. 3,875 ft.

BIENVILLE PARISH

M. V. Duncan et al's No. 2 Hutton, 200 ft. S, 300 ft. E, NW cor. NE SW Sec. 4-18-7. Set 10-in. 52 ft.; drlg. 2,020 ft.

Saline Drlg. Co.'s No. 1 Pardee, Sec. 27-14-6. S.D. 3,819 ft.; steel line measurement.

BOSSIER PARISH

W. A. Kirkland's No. 1 Jarrett & McKeller, 330 ft. N and W, S cor. NW NW Sec. 3-21-13. S.D. 1,700 ft.

Leonard Co.'s No. 1 Pearson, 250 ft. S and E of C Sec. 22-21-14. Drlg. 2,672 ft.

Plain Dealing Synd.'s No. 1-A Bollinger, Sec. 31-23-12, 330 ft. N and E SW cor. SE NW. S.W. and abd. 2,804 ft.

Richplane Oil Co.'s No. 1-A S. H. Bollinger, Sec. 22-22-13. Set 10-in. 40 ft.

Scott & Howard's No 1 Sherrill, Sec 13-19-12. Partly rigged up and S.D.

R. L. Skidmore et al's No. 1 Davis, Sec. 12-18-13. S.D. 1,150 ft.

Triangle Drlg. Co.'s No. 1-A State of La., Sec. 23-17-12, 1,000 ft. E, 2,640 ft. S, NW cor. Coring 2,700 ft.

United Gas Pub. Serv. Co.'s No. 1-A R. V. Kerr Unit, NE cor. Sec. 24-17-12. Set 9⅝-in. 2,715 ft.

CADDO PARISH

Alaska Oil Corp.'s No. 1 Dickerson, 150 ft. N and E, SW cor. NW NW. Drlg. 1,805 ft.

Nick Babare's No. 1 Gibbs, Sec. 16-20-15. Set 10-in. 50 ft.

J. Ed Bailey, tr.'s No. 1 Hartzo, NW cor. NE NW Sec. 28-22-16. S.D. 1,236 ft.

Barnsdale Oil Corp.'s No. 1 School fee, NE cor. NW SE Sec. 16-20-15. Coring 2,165 ft.

W. T. Bell et al's No. 1 Bostick, 1,820 ft. E, 660 ft. N SW cor. Sec. 12-22-16. Tested S.W.; S.D.; W.O. 2,785 ft.

Cal-La. Devel. Co.'s No. 1 Glassell, NW NE Sec. 11-19-15. Set. 10-in. 40 ft.

Roy C. Golsen's No. 1 Thigpen & Herald, 785 ft. E, 379 ft. S, NW cor. SW Sec. 15-20-15. Set 6⅝-in. 2,170 ft.; coring 2,190 ft.

Gulf Ref. Co.'s No. 4 Caddo Levee Board, 772 ft. S, 200 ft. E, C Sec. 10-20-16. S.W. and abd. 1,861 ft.

Hillman et al's No. 1 J. S. Noel Est., NE NE Sec. 12-20-16. Set 10-in. 21 ft.

A. D. King, tr.'s No. 1 Roach, 641 ft. E, 375 ft. N, SW cor. SE Sec. 4-14-16. S.D. 2,128 ft.

Murray Oil Co.'s No. 1 J. S. Noel, 293 ft. S, 200 ft. E, NW cor. SW Sec. 15-20-15. Set 6-in. 2,164 ft.; T.D. 2,191 ft.

Press & Lambert's No. 1 Robertson, 300 ft. N and E, SW cor. SE Sec. 15-20-15. W.O.S.R. 2,202 ft.

Recovery Oil Co.'s No. 1 W. L. Sibley, Sec. 15-19-14. Arranging to set csg. 2,448 ft.

(Continued on Page 105)

THE SIMPLE PUMPING JACK MODERNIZED by "OILWELL"

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Two Tests in Bee County Promise New Pools; Saxet Field, Nueces County, Extended South

SAN ANTONIO, Tex., May 6.—A new field was marked up for Bee County by completion of Worth Oil Co.'s No. 1-A Rutledge, 1½ miles north of the old Grayburg area in the Hadley Survey. Completed the first part of the week in the Pettus sand bottomed at 3,394 feet, it gave indication of making a dry gas well, but later in the week started making oil estimated at 4 bbls. of oil per hour through a one-half inch choke, with tubing pressure 750 pounds and casing pressure 850 pounds shut in. The Pettus sand was topped at 3,389 feet and 7-inch casing cemented at that depth. This is the second well drilled in the area by the company. Its No. 1 Rutledge, located north, was abandoned at 3,424 feet. Sun Oil Co. owns 120 acres east of the well, and L. W. Stieren owns the next 160 acres east of the Sun company's acreage and north of the discovery.

In the southern part of the county, an interesting wildcat which has shown promise of opening a field, is Felmont Corp.'s No. 1 T. J. Ernest. The operator made a 10-minute drill stem test from 4,729-37 feet and recovered 30 feet of mud with no pressure and is coring below 4,739 feet. Sand showing gas was cored last week from 4,728-32 feet. Location is 7 miles southwest of Beeville in the Bee County School Land Survey. A drill stem test was scheduled to be made on the wildcat of Dirks Brothers, No. 1 William Ocker, 18 miles northwest of Beeville in the J. O. Taylor Survey. Sand with an odor of oil was cored from 3,200-06 feet which appeared to be salt water sand. Shale was cored to 3,907½ feet and sandstone from 3,907-08 feet.

Nueces County

An important south extension was made to the Saxet Field, Nueces County, by completion of Texon Royalty Co.'s No. 1 Kocurek about 1½ miles south of production in the J. Ward Survey, for an initial production of 8 bbls. per hour through a one-quarter inch choke, with tubing pressure 50 pounds and shut-in casing pressure 350 pounds. Bottomed at 4,888 feet, with 7-inch casing cemented at 4,876 feet, production was obtained after the casing had been perforated with 10 holes from 4,874-76 feet. The sand from which the well is producing is the best producing sand in the field, and the completion is expected to create considerable drilling.

Live Oak County

On the "Jackson Trend" in Live Oak County, the wildcat of Whittington, No. 1 Little, approximately a mile north of the McNeil Field in the M. M. Shipp Survey, is preparing to complete at a plugged back depth of 4,256 feet, approximately the same depth from which the wells in the McNeil Field are producing. While the outcome is far from certain, it is believed it will make some kind of well, as it is showing considerable gas. There is some question whether the well is in the same formation as the McNeil Field. Some think the structure may be on an anticline, while others believe there is a fault separating the test on the north from wells on the south. It is reported the same operator will start another test as soon as this one is completed, probably to the north which will give some information on the structure. In the southwestern part of the county, Lefevre and Spice have made location for a wildcat in the Hooper and Wade Survey No. 299 and will start moving in material soon.

San Patricio County

The Plymouth Field, about 10 miles northeast of Sinton, San Patricio County, was assured of an early development program, when three locations were announced, two by Plymouth Oil Co., which discovered the field last week. The company's No. 2-C Welder is one-quarter of a mile north of the discovery and is being rigged up. No. 3-C Welder is about the same distance south of the discovery and is being rigged up. Southwest about three-quarters of a mile, Heep Oil Corp. is moving in machinery for No. 1-C Welder. Plymouth Oil Co.'s No. 1-C Welder, the discovery, completed at a total depth of 5,508 feet, has increased its production, and the last production gauge, it was making 300 bbls. per day, flowing through a one-quarter inch choke.

Union Sulphur Co.'s No. 3 American-Rio Grande Land & Irrigation Co., completed last week as the deepest producer in the Southwest Texas district, when recompleted in 16 feet of Frio sand bottomed at 7,493 feet, for an initial production of 8 bbls. per hour, is now making a daily allowable of 150 bbls. per day, flowing through two one-eighth inch chokes, with working pressure on the tubing 850 pounds.

Machinery is being moved to two abandoned deep tests drilled by the company prior to the discovery of the field and the company will go back into the old holes in attempt to complete them in the same sand from which the discovery is producing. The heavy rig used in drilling the discovery is being moved to No. 1 American-Rio Grande Land & Irrigation Co., temporarily abandoned at 6,431 feet, about a year ago, after the drill stem had been stuck at that depth. It is in the northeast corner of Farm Tract No. 2,297, Block 59, North Capisallo district, approximately 1¼ miles northeast of the discovery.

Southeast of the discovery well about 200 feet, a new rig is being moved to No. 2 American-Rio Grande Land & Irrigation Co., that was temporarily abandoned at 8,044 feet the first part of the year, due to the drill stem being twisted off while reaming. The drill stem parted at 2,629 feet and the remainder was out to about 5,000 feet. The test is 400 feet from the south and 400 feet from the east line of Farm Tract No. 2,082, Block 86, North Capisallo district. Both holes will be plugged back above the obstructions, where the hole will be sidetracked and redrilled.

Hidalgo County

Bluff Petroleum Co. has made location for a wildcat on the L. E. Knowles tract, 330 feet from the east line of the northeast 100 acres of the south 500 acres, of Share 14, Porcion 49, Ancient Jurisdiction of Reynosa, about 3 miles southwest of the town of Mission in Hidalgo County. It is on a block of 3,500 acres and is to be drilled to 4,000 feet. North of Edinburg, the wildcat of Earl J. Kankamer's No. 1 Frank Rabb, in the southeast corner of the Rabb 511 acres of the Laguna Seca League, was abandoned at 5,379 feet, with no showings of oil or gas.

Jim Wells County

In the Sandia gas field, northern Jim Wells County, O. W. Killam's No. 5 Wade is shut down after running an electrical coring test at a total depth of 4,201 feet. It missed the 4,028-foot sand that produced considerable oil for a short time in the operator's No. 4 Wade. It cored sandy shale with an odor of oil from 4,036-44 feet, the approximate depth from which No. 4 produced oil and then went to salt water.

Webb County

A production test is to be made during the week on Carolina-Texas Oil & Gas Co.'s No. 11 Benavides, in Block 12, Survey 683, in the Carolina-Texas gas field, 10 miles northwest of the Bruni Townsite area of the West Cole Field in Webb County, that indicated production from a deep sand, which showed oil and gas last week from 4,974 feet. It is approximately 1,600 feet lower than the sand found in the Bruni townsite area and considerably deeper than the wells producing in the Carolina-Texas gas field. The outcome is of importance as it will cause a new type of major play.

Duval County

Five miles east of the Eagle Hill Field, in Survey No. 226, Duval County, the interesting wildcat test of Henderson & Harvey, No. 1 Chernosky, is waiting for cement to set at a plugged back depth of 2,220 feet, which showed considerable oil on a drill stem test several weeks ago. It was originally drilled to the Government Wells sand at a total depth of 2,650 feet.

In the Loma Nova district, Duval County, much attention is centered on Johnson and Johnson's No. 1 Hubbard, 1½ miles south of production in Section 84. It is testing at a total depth of 2,799 feet. Sand showing saturation was cored from 2,795 feet to total depth. In the north end of the field, Al Buchanan's No. 2 J. O. Trevino, in Section 73, is reported completed at a total depth of 2,706 feet for a good well, although no production gauge is available. Saturated sand was cored in No. 3 Trevino from 2,682-93 feet and casing is being run, preparatory to testing. One of the best wells in the field was Texas Co.'s No. 6 Vela, in Survey No. 42. It cored sand from 2,695-2,704 feet, total depth, and was completed for an initial production of 25 bbls. per hour.

Bee County

In the south extension area of the West Tuleta Field, Bee County, Leslie McKay's No. 1 Campbell, in the W. B. Blanchard Survey, is running casing to test at a total depth of 3,934 feet. Saturated sand was cored from 3,925-34 feet, and on a drill stem test, 810 feet of oil was recovered in 10 minutes. This is the first test to reach the pay in the extension, recently proven productive by Dirks Brothers' No. 1 Ray, and it has the appearance of a good well.

Guadalupe County

Port Isabel Oil & Gas Co.'s No. 1 Emil Leissner, southwest of Sequin in Guadalupe County, is reported to be running about 100 feet high. It topped the chalk at 1,511 feet, with the base being reported at 1,620 feet and top of the Buda lime at 1,657 feet. It is drilling below 1,675 feet. It is in the A. C. Davis Survey.

Wildcat Operations in Southwest Texas

Week Ending May 4

BANDERA COUNTY

Plateau Oil Co.'s No. 1 Garrison, G.C.&S.F. Sur. No. 506, 1,500 ft. from W and 2,970 ft. from N lines of survey.
Drlg. 3,350 ft.

BASTROP COUNTY

Batts & Jarnson's No. 1 Mrs. Anneta Harris, 160 ft. from NW line, 300 ft. from SW line of 55-ac. tract, Maxomillian Sur. Location.

Hiram Edwards' No. 1 Murchison, 11,200 ft. from NW line, 4,200 ft. from SE line, Addison Litton Sur.
Abd. 2,400 ft.; (depth corrected).

Malone & Owens' No. 1 Spooner, 500 ft. from N line, 3,550 ft. from SW line of Leverenz Sur.
Drlg. 1,360 ft.

Marts & Beavens' No. 1 Miller, 235 ft. from NE line, 414 ft. from SE line of Blk. 22, Dykes Sur.
T.D. 3,000 ft.; pulled in derrick.

BEE COUNTY

Dirks Bros.' No. 1 Miller, 330 ft. from N and E lines of tract, C. Rivas Sur.
Moving in rig.

Dirks Bros.' No. 1 Goree, 330 ft. from NW cor. of Turman Sur. in J. Taylor Sur.
Tested wtr. 3,914 ft.

Firm Oil Co.'s No. 1 Copeland, 1,650 ft. from N line, 330 ft. from E line of lease, B. O. Hadley Sur.
Spudded.

Hartzendorf's No. 1 fee, 990 ft. from N line, 4,290 ft. from W line of 200-ac. tract, George Kerr Sur.
Waiting on D.S., 3,648 ft.

Humble O. & R. Co.'s No. 2 Thompson, 466 ft. SW of SE cor. of J. C. Wood tract, 466 ft. SW on line parallel to E line, Wm. Burke Sur.
Cutting out drill pipe 5,405 ft.

Francis P. Hynes' No. 1 Theo. M. Plummer, 330 ft. from W line, 990 ft. from S line of Sec. 33, Theo. M. Plummer Subd.
Drlg. 2,310 ft.

Felmont Corp.'s No. 1 T. J. Ernest, 466 ft. from SE cor. of J. C. Madray 216-ac., thence 460 ft. NW along survey line, thence S of R/A 466 ft., Bee County School Sur.
Coring 4,739 ft.

Paul L. Meaders' No. 1 Emil Keller, in NE cor. of Keller tract, 330 ft. from N line, 330 ft. from E line, Sec. 28, of the M. Alcorte Sur.
3,400 ft.; no report.

Worth Oil Co.'s No. 1-A Rutledge, 100 ft. S of No. 1, A. Hadley Sur.
T.D. 3,398 ft.; making gas and 4 bbls. of oil hourly.

BEXAR COUNTY

Jones & Kieffer's No. 1 LaGrane, NW cor. of tract, 210 ft. each way, F. Rolen Sur. No. 48.
T.D. 1,010 ft.; bailed some 38.3 gravity oil; now fishing for bailer.

McPhee & Briggs' No. 1 F. Lamb, 9,200 ft. from S line, 800 ft. from W line of Sur. No. 3 (Manuel de Luna).
Drlg. 1,900 ft.

Noble & Akins' No. 1 DeVilbiss.
T.D. 2,232 ft.; having trouble with heaving sand; showing little oil and gas.

Geo. O'Neil's No. 1 Holly Crouch, NW cor. of 150-ac. tract.
Drlg. 1,440 ft.

Carroll C. Raborn's No. 1 Claude McCauley, 150 ft. from N and NW lines of tract in Sec. 52, Wm. Harrison Sur.
T.D. 165 ft.; changing to rotary.

C. C. Raborn's No. 1 A. B. Stephens, 1,630 ft. from N line, 1,540 ft. from W line of tract, P. B. Hayes Sur. No. 3.
T.D. 415 ft.; moving in rotary.

CALDWELL COUNTY

Coffield & Lanning's No. 1 Franks, 150 ft. from N and E lines of S ½ of 131.6 acres, Edward Brown Sur.
3,100 ft.; no report.

Exploration Co.'s (F. Meyers) No. 1 W. T. Mooney, 810 ft. from S line, 450 ft. from W line of 95-ac. tract, S. Seal Sur.
Drlg. 1,180 ft.

Ogden & Reed Oil Co.'s No. 1 J. A. Compton, 450 ft. NE of NW line, 150 ft. SE at right angles out of NW cor. of P. Martinez Sur.
Moving in material.

DEWITT COUNTY

Stewart's No. 1 Kleberg, 680 ft. from W line and midway N and S lines of tract, Tommelson Sur.
210 ft.; no report.

Sunray Oil Co.'s (S. S. Price et al) No. 1 Beuhrig, 330 ft. from N and E lines of Sec. 7, T.&N.O. Sur.
S.D. 3,014 ft.; (depth corrected); preparing to deepen.

DUVAL COUNTY

Mills Bennett's No. 2 D.C.R.C., 1,200 ft. W of W cor. of Sur. 50, thence N 990 ft. in Sur. 258.
W.O.C. 42 ft.

Buffalo-Texas Syndicate's No. 1 Escobas, 2,777 ft. from N line, 1,944 ft. from W line of 930-ac. tract in San Francisco grant.
Abd. 4,010 ft.

Intrepid Oil Co.'s No. 2 Parr, 330 ft. from N and W lines of 80-ac. tract, Sur. 115.
Drlg. 1,500 ft.

Henderson & Harvey's No. 1 Chernosky, 330 ft. from S line, 660 ft. from W line, Sur. 226.

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Seventeen Locations Staked in the Permian Basin and Sixteen Reported in Panhandle District

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., May 6.—There were 17 locations staked in the Permian Basin this week, while 13 were completed, three dry. Three of the new tests will be wildcats, one in a small shallow field in Pecos County in which there has been no drilling for three years, and one in the extended Waddell Pool, northern Crane County.

Gulf Production Co., which has been increasing its activities throughout West Texas, has staked two interesting locations in the east half of Winkler County. These tests, one in the NW Section 10, Block B-3, P.S.L. Survey, and one on the NW cor. Section 17, Block B-2, same survey, are on the Keystone Cattle Co. ranch, northeast of the town of Kermit, and in the area where Sid Richardson is drilling on the Walton ranch in Section 1, Block B-3. This test is past 2,875 feet and has encountered gas above this depth. Gulf Production Co. holds nearly all the acreage in Block B-2 under lease. These new tests will be in the northwest corner.

Ector County

Empire Gas & Fuel Co.'s No. 1 Cummins, SE Section 10, Block 45, Township 1n, T.&P. Survey, about a half mile east of a small producer drilled last year by C. J. Davidson in the northeast corner of Ector County, struck between 3,000,000 and 4,000,000 feet of gas in anhydrite at 3,400 feet, but is drilling below 3,700 feet. This and Landreth Production Co.'s No. 1 Cowden heirs, 2 miles southeast, in Section 18, Block 44, may tie production between the Davidson discovery and the Landreth producer farther southeast in Section 20, Block 44, Township 1n. Empire's Cummins test has an elevation of 3,232 feet and is running about 80 feet higher on top of the brown lime than the Landreth test and 60 feet higher than the Davidson test in the same section.

Gulf Production Co.'s No. 1 Goldsmith, in Section 10, Block 44, Township 1s, T.&P. Survey, 4 miles southeast, has encountered gas higher in the hole, but is drilling below 4,000 feet.

Penrose and Rowan Drilling Co.'s No. 1 Kloh, in Section 31, Block 45, Township 1s, T.&P. Survey, on the west edge of Ector County, is being abandoned at 4,501 feet, contract depth, without showing oil, gas or water. Elevation is 3,154 feet. Top of brown lime was logged at 3,632 feet and white lime at 3,885 feet.

George Callahan and others' No. 1 Connell, in Section 1, Block B-16, a half mile extension to the Penn Pool, Ector County, flowed 127 bbls. in three hours after shooting with 320 quarts from 3,520-3,650 feet, and then bridged. Total depth is 3,650 feet. It is west of production.

Andrews County

J. W. Tripplehorn has spudded a west offset to one of the first wells in the Deep Rock or Ogden Pool in Andrews County. His location is 330 feet from the south line and 2,310 feet from the west line of Section 6, Block A-46, P.S.L. Survey. It is a diagonal offset to No. 1 King, drilled by Deep Rock Oil Co. several years ago. Tripplehorn later purchased the wells and leases from the company making the discovery, and it is the first test to be drilled in the immediate area for three years, although wells have been drilled south, southeast and west and other areas have been opened.

Crockett County

One of the first wells drilled in the old Powell or World Pool, Crockett County, for several years, was completed this week by Eppenauer Drilling Co. in its No. 1-C Powell in Section 53, Block BB, E.L.&R.R. Survey. It made high initial production, showing for 655 bbls. in 22 hours after shooting with 340 quarts from 2,468-2,555 feet and acidizing. Total depth is 2,556 feet. Same company is to stake location to the north and Stanolind Oil & Gas Co. is rigging up an east offset on acreage held jointly with Amerada Petroleum Corp.

Pecos County

Two tests in the shallow White and Baker Pool, about 9 miles west of the Yates Field, were abandoned this week. Cardinal Oil Co. abandoned No. 1 White and Baker, southeast of the discovery, in Section 51, Block Z, T. C. Survey, and Gulf Production Co. abandoned No. 5 White and Baker about 2 miles west of its discovery. No. 5 test is in Section 88, Block 194, G.C.&S.F. Survey. Total depth is 2,051 feet. Total depth of the Cardinal duster is 2,081 feet. The only direction this pool can run is north and northeast as dry holes hem it in on all other sides. The discovery is producing from a total depth of 1,820 feet.

Wildcats

Amerada Petroleum Corp. has assembled a block of 8,000 acres in Cochran extending over the state line into Roosevelt County, New Mexico, and is to shoot it with seismograph.

G. W. Basom, with Inland Oil Co. of Abilene, has assembled a 2,000-acre block centering in Lot 44, Bastrop County School Lands, joining the town of Sylvest on the south, in Fisher County, and is to spud a 3,250-foot cable tool test within 60 days.

Merry Brothers and Perini of San Angelo have assembled a block of 4,000 acres centering in Lot 19, Survey 318, Gillispie County School Lands, 1 mile north of Longworth, in Fisher County, and are to start a 3,250-foot cable tool test in 90 days. These operators, combined with the Tide Water Oil Co., recently opened a sandy lime pool about 5½ or 6 miles northeast of Rotan and are drilling a second test east of the discovery.

R. H. Scheid and others of Big Spring have a 1,000-acre block assembled in Section 3, and N half of Section 4, Block 14, T.&P. Survey, Jones County, and are to drill an 1,850-foot cable tool test. This is in the shallow area in the northern part of the county where there is production from around 1,850 feet.

McCulloch County

George Poulter has completed his second small gasser north of Brady on the Wyres ranch, in J. Heinsohn Survey No. 623. The gas pay was logged at 768 feet and the well completed at 783 feet, making an initial gauge of 2,500,000 feet of gas. Same company's No. 1 Hall made an initial gauge of 6,000,000 feet of gas. These wells are about 12½ miles north of the county seat, Brady. The area may prove a gas supply for towns in the area.

Courtney or Pryor Pool

C. W. Richards of San Antonio, who recently took over the small shallow wells in the Courtney or Pryor Pool in Block OW, about 12 miles west of Fort Stockton, and which were drilled by Phillips Petroleum Co., has made location for No. 4 Courtney, 920 feet from the north and west lines of Section 78, Block OW. This test will be 360 feet south of No. 2 producer. This will be the first test drilled in this old pool for several years.

Mr. Richards has cleaned out the first two wells in the pool, increasing their production from a few barrels to better than 70 bbls. per day, pumping. Steve Embry of Wink is preparing to erect a treating plant, and lubricating oil is to be produced from part of the oil, as it has an exceptionally high lubricating oil content. D. L. Randall of Wink is to drill the wells for Richard.

RANGER AND WICHITA FALLS

Ireland Oil Co.'s (Pace Brothers and J. R. Pugh) No. 1 George Doyle, in the L. Adams Survey, near the Coryell County line in southeastern Hamilton County, Ranger district, logged black sandy shale showing gas at 3,150 feet and a hard black sandy lime from 3,230-32 feet showing green oil that tested 31.5 gravity. It drilled to 3,238 feet without any increase in oil. This test is on a 9,500-acre block held by the company, and is not believed to be in the Ellenberger lime, producing horizon of the Ordovician.

Shaffer and Shaffer of Santa Anna have sold 800 acres in the northwest corner of the M. Martinez Survey, Coleman County, with seven oil wells and three gas wells, producing from the 1,500 and 2,200-foot pay horizons, to Coleman Gas & Oil Co., which has a gas line to Santa Anna and Coleman, where it owns distributing systems.

Young County

Nash and Winfohr of Graham, have purchased 132.5 acres, including one well making gross production of 83 bbls. from A. T. Strong and Texas Co. in the T.E.& L. Survey No. 2,738, Young County. They have also taken over 265 acres with one well making 13 bbls. in the east half of T.E.&L. Survey No. 2,726, and all of the Hunt Survey, and all of the G.B.&N. Survey No. 4, a total of 996.5 acres, including two wells with 46 bbls. daily gross production. This acreage is on the east line of the county. Part cash was paid, the remainder in oil.

L. A. Long's No. 1 R. Kutch, northeast corner of the W. H. Freeman Survey, Young County, has logged a new pay horizon, and has opened a new pool. The well had sand with a showing of oil from 1,699-1,705 feet, with an estimated 5,000,000 feet of gas. At a total depth of 1,706 feet it had oil sand and filled 1,400 feet with oil in 10 hours. It is 900 feet north of a 3,940-foot dry hole and south and southwest of old producers in the 2,600-foot pay.

Cooke County

The Bulcher Pool, Cooke County, is getting such a play Stanolind Pipe Line Co. is adding a unit to its pumping station serving the Bulcher and Muenster Pools.

There were 42 completions in the Wichita Falls district this week, half dry and abandoned. The district produced a daily average of 61,945 bbls. this week.

PANHANDLE DISTRICT

There were 16 locations in the Panhandle district this week with 12 completions, all but 1 producers.

Humble Oil & Refining Co. abandoned its second test on the Smith Land & Cattle Co.'s ranch, in Section 14, Block 9, H.&G.N. Survey, about 22 miles northeast of the town of Childress in Childress

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Wildcat Operations in West Texas

Week Ending May 4

ANDREWS COUNTY

Fuhrman Pet. Corp.'s No. 2 Ford, 440 ft. from S and 1,320 ft. from E, Sec. 16, Blk. A-43.
T.D. 1,704 ft.; ran csg.

Honolulu & Llano Oil Co.'s No. 1-B Parker, 440 ft. from N and 1,650 ft. from E, Sec. 11, Blk. A-42.
Elev. 3,281 ft.; drlg. 1,732 ft.

Humble Oil & Ref. Co.'s No. 4 Means, 654 ft. from S and 1,997 ft. from W, Sec. 4, Blk. C-45.
Elev. 3,185 ft.; drlg. 3,450 ft.

Republic Prod. Co.'s No. 1 Boner-State, 2,200 ft. from S and 1,320 ft. from E, Sec. 25, Blk. A-43.
Rigged up combination tools.

J. W. Trippiehorn's No. 1 Ogden, 330 ft. from S and 2,310 ft. from W lines of Sec. 6, Blk. A-46, P.S.L. Sur.
Elev. 3,211 ft.; drlg. 210 ft.

Wahlenmaier et al's No. 1 Odessa Ranch Co., 1,320 ft. from N and E of Sec. 10, Blk. A-32, P.S.L. Sur.
Elev. 3,307 ft.; C.O. 1,230 ft.

Wahlenmaier et al's No. 1 Cox Estate, 1,320 ft. from N and W of Sec. 3, Blk. A-33. Location.

BREWSTER COUNTY

F. C. Dodson's No. 1 Texas American Syndicate, 660 ft. from N and E, Sec. 66, Blk. 10, G.H.&S.A. Sur.
Drlg. out cmt. 950 ft.

Joiner et al's No. 1 McIntyre, 353 ft. from S, 2,390 ft. from E of Sec. 21, Blk. 352, W. M. Mitchell Sur.
S.D. 2,150 ft.

King & Franklin's No. 1 Gage Est., C Sec. 138, Blk. 22, G.H.&S.A. Sur.
S.D. 800 ft.

G. H. Storey's No. 1 Wilson, 1,980 ft. from N and E lines of Sec. 3, Blk. 212, T.&St.L. Sur.
Drlg. 622 ft.

S. G. Smith's No. 1 Decie, 2,490 ft. from S and E, Sec. 7, Blk. 1.
S.D. 815 ft.

COCHRAN COUNTY

Kelsey's No. 1 Slaughter, C Labour 36, League 150, R.C.S. Lands.
Derrick.

West Texas Development Co.'s No. 1 Slaughter, near C of Labour 53, League 149, Randall Co. School Lands.
Derrick.

COKE COUNTY

Haggerty et al's No. 1 Gaston, 340 ft. from S and 654 ft. from W, Sec. 11, Jos. Young Sur. (old well deepening).
Drlg. 2,953 ft.

CRANE COUNTY

Cranfill Bros.' No. 1 Tubbs, 330 ft. from S and W of Sec. 11, Blk. B-27, P.S.L. Sur.
Elev. 2,536 ft.; drlg. 1,712 ft.

Gulf Prod. Co.'s No. 10 Waddell, C NW ¼ Sec. 11, Blk. B-23. Location.

Gulf Prod. Co.'s No. 1 Henderson, 1,313 ft. from S and 1,322 ft. from E, Sec. 3, Blk. B-23, P.S.L. Sur.
Elev. 2,778 ft.; drlg. 465 ft.

Gulf Prod. Co.'s No. 1 M. B. McKnight, 660 ft. from S and W, Sec. 9, Blk. B-21.
Elev. 2,679 ft.; drlg. 1,875 ft.

Gulf Prod. Co.'s No. 1 Waddell, C NW NW Sec. 4, Blk. B-27, P.S.L. Sur.
Rigging up heavy rotary 4,595 ft.

Magnolia Pet. Co.'s No. 1 Edwards, 330 ft. from S and 1,650 ft. from E, Sec. 3, Blk. B-23.
Elev. 2,778 ft.; standard tools rigged up.

CROCKETT COUNTY

Leslie-Hiller et al's No. 1 Todd, 1,200 ft. N and 330 ft. E, Sec. 26, Blk. WX, G.C.& S.F. Sur.
S.D. 580 ft.

Humble Oil & Ref. Co.'s No. 1 Couch, C NW Sec. 3, Blk. QR, G.C.&S.F. Sur.
Temporarily abnd. 1,881 ft.; elev. 2,538 ft.

CULBERSON COUNTY

Anderson-Prichard Oil Corp., Magnolia Pet. Co. et al's No. 1 Borders, 1,255 ft. N and 2,305 ft. from W, Sec. 34, Blk. 69, P.S.L. Sur.
S.D. 1,125 ft.

Miller Bros.' No. 1 fee, 1,900 ft. from N and 660 ft. from E line of Sec. 21, Blk. 97, P.S.L. Sur.
S.D. 2,137 ft.; slight show gas here.

Wood et al's No. 1 Hall, 250 ft. from S and 85 ft. from E, Sec. 11, Blk. 54½, 16 miles N of Van Horn, P.S.L. Sur.
S.D. 246 ft.

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Four East Texas Wildcat Areas Are Dropped; Rig Up for Trinity Sand Test in Fannin County

By L. E. BREDBERG

DALLAS, Tex., May 6.—Four more wildcat areas were rubbed out as possible producing areas in East Texas this week, two in Henderson County, one each in Anderson County and Van Zandt County.

Gulf Production Co. abandoned its test near Elkhart in the southeastern part of Anderson County at a total depth of 5,773 feet. It is on the M. Rogers lands in the D. Parker Survey. It topped the sand at 5,519 feet.

T. L. Wynn and others abandoned No. 1 George Forrester, in the S. Cherry Survey, South of Murchison in Henderson County, at a total depth of 4,367 feet. It topped the Woodbine from 4,290-95 feet. The other duster was drilled by Taubert and McKee on the M. T. Dobbs, lands, in the George Aldrich Survey, 4 miles east of Malakoff. Total depth is 4,048 feet.

The Van Zandt County wildcat was drilled on the Eaton farm in the J. Wilson Survey, 2 miles southeast of Martin's Mill. It went to a total depth of 4,758 feet. The Monterrey Oil Co. (Green and Winn) drilled it.

Wood and others had tough luck with No. 4 New Birmingham Development Co. in the L. Jordan Survey, 810 feet southeast of the discovery and have skidded derrick 30 feet north and started new hole. Total depth of the junked hole is 2,495 feet.

Killough and Tucker have a rig on their G. W. Lee farm lease in the J. Burleson Survey, Leon County, in wildcat territory.

E. M. Thomason & Co. has rigged up a Woodbine sand test on the C. Morgan 100 acre tract in the William Haggard Survey, 1 mile southwest of McGlothlin's No. 1 Dobbin, a dry hole in Navarro County. McGlothlin and associates have assembled a block around the town of Roane northeast of Corsicana and are to drill a 1,000-foot test. They are assembling 2,500 acres centering in the James A. Johnson and Pratt Surveys, on which another test will probably be drilled.

Trinity Sand Test

B. F. Allen has a rig for a Trinity sand test on a block 1 mile south of Ector and about 6 miles west of Bonham, in Fannin County, on the B. Argo 16½-acre tract in the J. G. Swisher Survey.

W. E. Morrison has assembled approximately 3,075 acres centering in the W. Condray Survey, 2 miles east and southeast of Neches in Anderson County, and is to drill a Woodbine sand test within 90 days.

T. W. Woodley of Shreveport has taken a 6,000-acre block for a 3,000-foot test near Dolby Springs, Bowie County.

Humble Oil & Refining Co. has purchased nearly 1,600 acres in the J. Aguilera Survey in the Red Lake or Turlington area of Freestone County. This area has two gassers on the P. D. C. Ball lands in the Aguilera Survey, about 2½ miles south of Turlington, drilled by Daniels Oil & Royalty Co. They are shut in, but may be tapped by a line expected to be laid from Freestone County to tap the Lone Star Gas Co.'s 12-inch trunk line from Long Lake Field, a short distance east in southwest Anderson County, to Waco to the west in McLennan County. The line will run north into the Cayuga Field, thence to Dallas.

A. McClung of Fort Worth has assembled approximately 15,000 acres in Rains County, running 4 miles west and thence south to the Sabine River from Emory. Two Woodbine sand tests are expected to be drilled.

Thomas D. Humphrey has assembled a block of 1,000 acres centering in the W. Howe Survey, about 3 miles south of Ore City, in Upshur County, extending into Harrison County, and is to drill on the C. Nations farm in the R. Asher Survey, Upshur County, 1½ miles north of Ore City on another location.

J. W. Hoosier and M. R. Malone have purchased a one-quarter interest in O. T. Clark's No. 1 Williams wildcat in the D. Hill Survey, 3 miles northeast of Longview, Gregg County, and have taken about 400 acres northeast. This test is shut down at total depth of 3,620 feet.

H. L. Hunt and Sun Oil Co.'s test on the Alice Scott lands in the Joseph Crawford Survey, in the Slocum area of southern Anderson County, is coring below 5,145 feet with no showing. It has not yet topped the Austin chalk. Elevation is 411 feet.

Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 Smith, in the John Adams Survey, 2 miles north of production in the Long Lake Pool, southwest Anderson County, appears only a gasser. It cored from 30 to 40 feet of gas sand to 5,260 feet and is drilling at 5,285 feet.

Anderson County

Gulf Production Co.'s No. 2 Robinson, in the D. Stilts Survey, about one-quarter mile west of the Maddox producer in Camp Hill Pool, eastern Anderson County, is the only test drilling although two are scheduled. This test topped the Pecan Gap chalk at 3,980 feet, about level with the same marker in the Maddox test, and is drilling below 4,025 feet. The Maddox test was completed at a total depth of 5,192 feet, coring Austin chalk from 4,960-5,185 feet.

Roeser & Pendleton, Inc.'s No. 1 Wathen, in the B. Towles Survey, a south offset to the Wathen northwest extension well in the Cayuga Field, flowed 101 bbls. the first 24 hours through one quarter-inch choke from a total depth of 4,091 feet. This makes the second producer in this extended area, with several drilling.

Blackwell Oil & Gas Co. and others have staked location on the Malone 100-acre tract in the J. Blach Survey, about 1½ miles southeast of production in the Van Field, Van Zandt County, and will drill a Woodbine sand test.

Wildcat leasing and royalty buying has been increasing in the East Texas district.

EAST TEXAS FIELD

There were 125 tests completed in the East Texas Field this week, all but 4 proving producers. Two of the dry holes were in the extension area of Upshur County. One test was dry in Gregg County and one in Smith County. Eight of the producers were completed as "swabbers," and six as pumpers, with one producing by gas lift. With the field being extended gradually, especially on the northeast, northwest and on the east edge, it looks as if there would be at least 120,000 proven acres in the field. There were 98 locations staked.

EAST TEXAS COMPLETIONS

Gregg County

Amerada Petroleum Co.'s No. 12 Cont. State Bank, top sand 3,578 feet, total depth 3,600 feet, initial production 16 bbls. in 15 minutes; No. 11 Hearne, top sand 3,503 feet, total depth 3,513 feet, initial production 19 bbls. in 15 minutes. Arkansas Fuel's No. 9 Allison, top sand 3,579 feet, total depth 3,604 feet, initial production 27 bbls. in 15 minutes; No. 7 Stephens, top sand 3,594-3,617 feet, total depth 3,619 feet, shale, initial production 25 bbls. in 15 minutes. Atlantic's No. 18 Duncan, top sand 3,630 feet, total depth 3,683 feet, initial production 130 bbls. an hour, 2½-inch tubing; No. 60 Hays, top sand 3,472 feet, total depth 3,520 feet, initial production 120 bbls. an hour, 2½-inch tubing; No. 71 Judge, top sand 3,510 feet, total depth 3,527 feet, initial production 130 bbls. an hour, 2½-inch tubing; No. 75 Judge, top sand 3,498 feet, total depth 3,519 feet, initial production 130 bbls. an hour, 2½-inch tubing; No. 14 Lee, top sand 3,603 feet, total depth 3,655 feet, initial production 130 bbls. an hour, 2½-inch tubing; No. 6 McKinley, top sand 3,621 feet, total depth 3,656 feet, initial production 70 bbls. an hour, 2½-inch tubing. Bishop Oil Corp.'s No. 8 Richey, top sand 3,553 feet, total depth 3,595 feet, initial production 35 bbls. in 30 minutes.

Clark & Cowden's No. 10 Christian, top sand 3,640 feet, total depth 3,677 feet, initial production 105 bbls. an hour; No. 5 Clemens, top sand 3,633 feet, total depth 3,668 feet, initial production 60 bbls. an hour; No. 4 Wilhite, top sand 3,635 feet, total depth 3,685 feet, initial production 60 bbls. an hour. Nathan Oil Co.'s (formerly Geo. Culver's) No. 10 Walker, top sand 3,569 feet, total depth 3,773 feet, initial production 25 bbls. in 30 minutes, 2-inch tubing. Empire Gas & Fuel Co.'s No. 9 L. J. Rogers, top sand 3,572 feet, total depth 3,609 feet, initial production 34 bbls. in 15 minutes; No. 8 Spurrier, top sand 3,557 feet, total depth 3,612 feet, initial production 32 bbls. in 15 minutes. Humble Oil & Refining Co.'s No. 19 H. M. Lawrence, top sand 3,602 feet, total depth 3,639 feet, initial production 78 bbls. an hour. T. D. Humphrey's No. 7 J. H. Thomas, top sand 3,612-30 feet, total depth 3,634 feet, shale, initial production 40 bbls. an hour. W. R. Jones' No. 5 R. P. Doby, top sand 3,688 feet, total depth 3,714 feet, initial production 50 bbls. an hour.

W. Logan, Receiver's No. B-6 Harris, top sand 3,511 feet, total depth 3,543 feet, initial production 25 bbls. in 20 minutes, 1-inch choke. Magnolia Petroleum Co.'s No. 11 H. Key, top sand 3,526 feet, total depth 3,559 feet, initial production 100 bbls. an hour; No. 6 W. R. Nicholson, top sand 3,658 feet, total depth 3,670 feet, initial production 100 bbls. an hour; No. B-8 T. Tuttle, top sand 3,548 feet, total depth 3,576 feet, initial production 104 bbls. an hour. F. W. Merrick's No. A-11 Nicholson, top sand 3,694 feet, total depth 3,706 feet, initial production 20 bbls. in 15 minutes. Natchitoches Oil Co.'s No. 9 M. O. Shepherd, top sand 3,553 feet, total depth 3,590 feet, initial production 25 bbls. in 15 minutes, 2-inch tubing. B. F. Phillips' No. 1 York, top sand 3,586 feet, total depth 3,587 feet, initial production 40 bbls. in 30 minutes. Sattelite Oil Co.'s No. 10 Colburn, top sand 3,518 feet, total depth 3,568 feet, initial production 15 bbls. in 15 minutes. Shano Oil Co.'s No. 5 P. Hopkins, top sand 3,542 feet, total depth 3,567 feet, initial production 30 bbls. in 30 minutes.

Shell Petroleum Corp.'s No. 17 A. N. King, top sand 3,511-70 feet, total depth 3,581 feet, shale, initial production 40 bbls. in 30 minutes. Stanolind & Simms' No. 10 Fonville, top sand 3,513 feet, total depth 3,558 feet, initial production 33 bbls. in 31 minutes. Atlantic's No. B-13 Hughey, top sand 3,534 feet, total depth 3,586 feet, initial production 100 bbls.

East Central Texas Wildcats

Week Ending May 4

CAMP HILL AREA—ANDERSON COUNTY

Gulf Prod. Co.'s No. 2 W. Robinson, 330 ft. from S and 330 ft. from E of 100-ac. tract, 50 ft. N of No. 1, D. Stilts Sur.
Drlg. 3,425 ft.

CAYUGA AREA—ANDERSON COUNTY

Clark-Cowden's No. 1 Barton, 550 ft. N and S and 199 ft. E and W lines of 9.86-ac. lease, T. Bristow Sur.
Top Austin 3,200 ft.; drlg. 3,325 ft.

Hunt & Son Oil Co.'s No. 1 Scott, 1,196 ft. from N and 330 ft. from W lines, Jos. Crawford Sur.
Drlg. 4,955 ft.

J. W. Luttes' No. 1 C. McKee, 2,640 ft. from N line of lease and survey and 330 ft. from W line of McKey 800-ac. tract.
Derrick.

Roeser & Pendleton's No. 1 Wathen, 467 ft. out of SE cor. of tract and B. Towles Sur.
Top sand 4,066 ft.; T.D. 4,094 ft.; testing.

Tide Water-Seaboard's No. 1 J. Smith, John Adams Sur., 668 ft. W of E line and 467 ft. N of S line of 41-ac. tract (Long Lake area).
Coring 5,210 ft.

Tide Water Oil Co. et al's No. 21-A Wells, 4,079 ft. N and 2,333 ft. W of lease, S. Edmondson Sur. (Trinity test).
Drlg. 7,624 ft.

BOWIE COUNTY

Tex-Ark. Oil Co.'s No. 1 Hamilton Estate, 600 ft. E and 350 ft. N lines, J. Milan Sur., 4 miles S of Red River.
T.D. 250 ft.

CHEROKEE COUNTY

H. A. Baker et al's No. 1 T. Smith, 630 ft. S and 660 ft. W of SW cor. of W. A. Newton's 260-ac. tract, 2½ miles N of Jacksonville, J. Pineda Sur.
Derrick.

Jacksonville O. & G. Co.'s No. 1 H. D. Henderson, 660 ft. from N and W lines of 40-ac. tract out of Tankersley 104-ac. tract, 5 miles NE of Jacksonville, J. Pineda Sur.
S.D. 693 ft.

Ponta Oil Co.'s No. 1 C. W. Darby, 1,944 ft., S and 630 ft. W of East Cyrus Parks Sur., 2¼ miles S of Summerfield.
Top Austin 4,416 ft.; coring 4,425 ft.

Wilson Stubbs Oil Co.'s No. 1 Rowborts, 450 ft. from S line, 150 ft. from W line of 100-ac. tract, 2 miles SW of Jacksonville, J. D. Wolfin Sur.
S.D. 1,553 ft.

T. J. Woods et al's No. 3 New Birmingham Dev. Co., 150 ft. out of SE cor. of 160-ac. tract, 810 ft. SE of No. 1, L. Jordan Sur.
T.D. 2,495 ft.; junked hole; skidding 30 ft. north.

ELLIS COUNTY

Murphee & Coker's No. 1 Coker, 2,900 varas along S line of grant from river and 1,700 varas N at R/A, R. De La Pena Sur.
S.D. 1,544 ft.

FALLS COUNTY

C. P. Schuh et al's No. 1 P. St. Clair, 330 ft. from W and 280 ft. from S of 218-ac. tract, J. A. Manchaca Sur., E of Chilton.
T.D. 1,073 ft.; little oil and gas; to put on pump.

FANNIN COUNTY

B. F. Allen's No. 1-B Argo, center of 16½-ac. tract in J. G. Swisher Sur., 1 mile S of Ector.
Rig on ground.

Wilson, Moore & Smith's No. 1 Mrs. M. Rogers, 150 ft. from N and 900 ft. from E line of Jas. Saunders Sur., in town of Trenton.
S.D. 622 ft.

FREESTONE COUNTY

Hoover et al's No. 1 McFall, 150 ft. S and W lines, S. Garrison Sur., E of Mexia.
Location.

GREGG COUNTY

O. T. Clark's No. 1 Williams, 2,100 ft. from S and 2,400 ft. from W of D. Hill Sur., 3 miles NE of Longview.
T.D. 3,771 ft.; no show.

HENDERSON COUNTY

Great State's No. 1 Ansley, 1,724 ft. W and 300 ft. S of SE cor. of M. Matthews Sur., N. H. T. Thompson Sur.
S.D. 3,315 ft.

H. M. Wilson's No. 1 fee, 970 varas S of NE cor. of 943-ac. tract, 5 miles N of Malahoff.
Derrick.

HOPKINS COUNTY

D. A. Hale et al's No. 1 L. M. Hall, 200 ft. from N and E lines of 70-ac. tract, 1

(Continued on Page 79)

an hour, 2½-inch tubing. Barnsdall Oil Co.'s No. 2 D. Smith, top sand 3,550 feet, total depth 3,559 feet, initial production 31 bbls. in 30 minutes. Bay Oil Co.'s No. 5 W. Smith, top sand 3,538 feet, total depth 3,560 feet, initial production 126 bbls. an hour. Dearing & McBride's No. 1 Elder, top sand 3,513 feet, total depth 3,542 feet, shale, initial production 7 bbls. in 24 hours, pumping. Flanigan Production Co.'s No. A-1 W. P. Walker, top sand 3,563 feet, total depth 3,574 feet, initial production 40 bbls. in 30 minutes.

Gulf Production Co.'s No. 19 Cole, top sand 3,535 feet, total depth 3,544 feet, initial production 50 bbls. an hour, 2-inch tubing; No. 70 S. Hilburn, top sand 3,577 feet, total depth 3,598 feet, initial production 70 bbls. an hour; No. 83 S. Hilburn, top sand 3,634 feet, total depth 3,644 feet, initial production 76 bbls. an hour. Vance & Fagan's (formerly Harcher Oil Co.'s) No. 2 R. H. Laird, top sand 3,540 feet, total depth 3,600 feet, shale, initial production 60 bbls. an hour, 2-inch tubing. J. C. Hensley's No. B-1 T. Bell, top sand 3,704 feet, total depth 3,707 feet, initial production 50 bbls. an hour; No. 3 Register, total depth 2,650 feet, junked and abandoned. Invincible Oil Co.'s No. 17 Weiss, top sand 3,507 feet, total depth 3,521 feet, initial production 125 bbls. an hour.

Iowa-Payne's No. 3 Walker, top sand 3,656 feet, total depth 3,661 feet, initial production 35 bbls. an hour, 2-inch tubing. Magnolia Petroleum Co.'s No. 17 L. A. Griffin, top sand 3,544-50 feet, total depth 3,585 feet, sandy shale, initial production 60 bbls. an hour, 2-inch choke. Shell Petroleum Co.'s No. 57 J. B. Watson, top sand 3,617 feet, total depth 3,662 feet, shale, initial production 42 bbls. in 30 minutes. Smith & Strauss' No. 2 G. Davis, top sand 3,650 feet, total depth 3,660 feet, initial production 60 bbls. an hour. Stodel Oil Co.'s No. 9 D. Smith, top sand 3,622 feet, total depth 3,630 feet, initial production 50 bbls. an hour, 2-inch tubing. Texas-Canadian's No. 3 C. Hilburn, top sand 3,642 feet, total depth 3,644 feet, initial production 20 bbls. in 20 minutes. Tide Water's No. 25 Bivens, top sand 3,622 feet, total depth 3,628 feet, initial production 8 bbls. in 70 minutes, 1-inch choke.

Rusk County

W. L. Allen's No. 2 L. Morse, top sand 3,569 feet, total depth 3,618 feet, initial production 20 bbls. in 30 minutes, three-quarters inch choke. Fred Birdsong's No. 1 R. Jones, top sand 3,677 feet, broken sand 3,686 feet, total depth 3,700 feet, lime, initial production pumping 40 bbls. an hour. Darby Petroleum Co.'s No. 14 C. O. Christian, top sand 3,711 feet, total depth 3,746 feet, initial production 125 bbls. an hour. Devonian & Gulf's No. 34 Motley, top sand 3,732 feet, total depth 3,740 feet, initial production 75 bbls. an hour. Geirer Brothers' No. 4 Minor, top sand 3,741 feet, total depth 3,744 feet, initial production 25 bbls. in 15 minutes, three-quarters inch choke. Humble Oil & Refining Co.'s No. B-9 Ben Laird, top sand 3,681 feet, total depth 3,700 feet, initial production 102 bbls. an hour; No. A-32 S. S. Laird, top sand 3,636 feet, total depth 3,692 feet, shale, initial production 100 bbls. an hour; No. B-71 S. S. Laird, top sand 3,572 feet, top Geo. lime 3,600 feet, total depth 3,602 feet, lime, initial production 60 bbls. an hour on gas lift.

Joe Long's No. 1 Kennedy (formerly E. Montgomery's fee), top sand 3,622-31 feet, total depth 3,660 feet, shale, initial production pumping 10 bbls. in 24 hours. Magnolia Petroleum Co.'s No. 12 Ben Laird, top sand 3,581 feet, total depth 3,631 feet, initial production 120 bbls. an hour, 1-inch choke. J. H. Merritt's No. 1 D. Jones, top sand 3,603-05 feet, total depth 3,663 feet, shale, initial production swabbing 20 bbls. an hour. Napoleonic Oil Co.'s No. 1 D. Jones, top sand 3,608 feet, total depth 3,683 feet, shale, initial production 20 bbls. an hour. National Oil & Gas Co.'s No. 4 Dixon, top sand 3,623 feet, total depth 3,675 feet, initial production 45 bbls. an hour. Venable & McClanahan's No. 24 Birdwell, top sand 3,607 feet, total depth 3,629 feet, initial production 80 bbls. in 30 minutes. Yandle Rogers' No. B-3 Sexton heirs, top sand 3,630-53 feet, total depth 3,694 feet, shale, initial production 30 bbls. an hour.

Shell Petroleum Co.'s No. 16 R. Russell, top sand 3,721 feet, total depth 3,758 feet, initial production 40 bbls. in 30 minutes. Smith & West's No. 1 Rosa Jones, top sand 3,625 feet, total depth 3,661 feet, shale, initial production 300 bbls. in 15 hours, 2-inch tubing. Snowden & McSweeney's No. 19 R. H. Laird, top sand 3,571 feet, total depth 3,587 feet, initial production 32 bbls. in 20 minutes. Stanolind & Crosby's No. 4 L. Morse, top sand 3,574 feet, total depth 3,649 feet, initial production 27 bbls. in 26 minutes. Bailey & Tremble's No. 3 Alford, top sand 3,696 feet, total depth 3,715 feet, shale, initial production 20 bbls. an hour. F. H. Brown's No. 3 Tipps, top sand 3,547 feet, total depth 3,632 feet, initial production pumping 10 bbls. an hour. W. J. Collins' No. 1 S. Crook, top sand 3,534 feet, total depth 3,560 feet, initial production swabbing 20 bbls. in 30 minutes.

R. E. Fair, Inc.'s No. 14 Maxwell, top sand 3,705 feet, total depth 3,761 feet, shale, initial production 20 bbls. in 30 minutes. F. W. Fisher's No. 1 Eaton heirs, top sand 3,745 feet, total depth 3,795 feet, initial production 90 bbls. an hour. W. B. Hamilton's No. 4 M. L. Thompson, top sand 3,684 feet, total depth 3,712 feet, initial production 98 bbls. an hour. Humble Oil & Refining Co.'s No. B-11 Ida Holt, top sand 3,725-55 feet, total depth 3,778 feet, initial production 100 bbls. an hour; No. A-38 S. A. Plowman, top sand 3,686-3,707 feet, total depth 3,723 feet, shale, initial production 116 bbls. an hour, 2-inch choke. Hunt Production Co.'s No. 5 Plowman, top sand 3,738 feet, total depth 3,758 feet, initial production 20 bbls. in 11 minutes; No. 13 Reed, top sand 3,590 feet, total depth 3,691 feet, pumping 24 bbls. in 50 minutes.

Alex McCutchin's No. 1 Frederick, top sand 3,520 feet, total depth 3,605 feet, initial production swabbing 20 bbls. an hour. J. E. Mabee and others' No. 5 Wilson, top sand 3,632 feet, total depth 3,640 feet, initial production 100 bbls. an hour. Magnolia Petroleum Co.'s No. 9 A. Perkins, top sand 3,618-40 feet, total depth 3,652 feet, initial production 60 bbls. an hour, 1-inch choke. Manahan Oil & Gas Co.'s No. 12 W. F. Neal, top sand 3,811 feet, total depth 3,816 feet, initial production 27 bbls. in 30 minutes. Marathon Oil Co.'s No. 15 Graham, top sand 3,638 feet, total depth 3,676 feet, initial production 61 bbls. an hour; No. 78 Grissom, top sand 3,648 feet, total depth 3,657 feet, initial production 70 bbls. an hour; No. 7 Kangerga, top sand 3,610 feet, total depth 3,654 feet, initial production 94 bbls. an hour; No. 20 Price, top sand 3,583 feet, total depth 3,635 feet, initial production swabbing 20 bbls. an hour.

Octo Oil Co.'s No. 1-C W. H. Frederick, top sand 3,560 feet, total depth 3,584 feet, shale, initial production swabbing 12 bbls. an hour; No. B-1 P. Tipps, top sand 3,570 feet, total depth 3,583 feet, initial production swabbing 12 bbls. an hour. Pine Petroleum Co.'s No. 6 Giles, top sand 3,725 feet, total depth 3,752 feet, initial production 80 bbls. an hour, three-quarters inch choke. G. B Ray Oil Co.'s No. 8 Wilson, top sand 3,620 feet, total depth 3,640 feet, initial production 60 bbls. an hour. Regent Oil Co.'s No. B-5 L. Harmon, top sand 3,780 feet, total depth 3,812 feet, initial production 75 bbls. an hour. Max Ruben's No. B-2 Keeling, top sand 3,737 feet, total depth 3,760 feet, initial production 60 bbls. an hour. Sells Petroleum Co.'s No. 1 S. Stone, top sand 3,630 feet, total depth 3,634 feet, initial production 40 bbls. in 30 minutes. Sinclair Prairie's No. 13 Holland, top sand 3,615 feet, total depth 3,700 feet, initial production 20 bbls. in 30 minutes.

Smith County Oil Co.'s No. 3 L. Tolliver, top sand 3,675 feet, total depth 3,760 feet, initial production 25 bbls. in 30 minutes, 2-inch tubing. Sonbar Oil Co.'s No. 11 Finney, top sand 3,641 feet, total depth 3,715 feet, shale, initial production 80 bbls. an hour. Southern Oil Co.'s No. 4 Henson heirs, top sand 3,530 feet, total depth 3,640 feet, initial production pumping 200 bbls. in six hours. Nivla Oil Co.'s No. 1 Bradford, top sand 3,560 feet, total depth 3,630 feet, shale, initial production pumping 20 bbls. an hour. Sutton & Hawkins' No. 1 M. Smith Estate, top sand 3,572-75 feet, total depth 3,625 feet, shale, initial production swabbing 20 bbls. hour. Tide Water's No. 11 R. Pool, top sand 3,693 feet, total depth 3,741 feet, initial production 60 bbls. an hour, 1-inch choke. Tysco Oil Co.'s No. D-2 Frederick, top sand 3,528 feet, total depth 3,645 feet, shale, initial production swabbing 20 bbls. an hour. Venable & McClanahan's No. 34 Birdwell, top sand 3,600 feet, total depth 3,629 feet, initial production 75 bbls. in 30 minutes.

Smith County

Barney Carter's No. 3 T. O. Wright, top sand 3,699 feet, total depth 3,710 feet, initial production 120 bbls. an hour. Gulf Production Co.'s No. 6 Alford, top sand 3,808 feet, total depth 3,810 feet, initial production 40 bbls. an hour, three-quarters inch choke. Illinois Oil Co.'s No. 37 Mayfield, top sand 3,796 feet, total depth 3,798 feet, initial production 115 bbls. in two hours. McMahan and others' No. 8 S. S. Cook, top sand 3,723 feet, total depth 3,724 feet, initial production 30 bbls. in 30 minutes. R. E. Martin and others' No. 1 Tyiska, top sand 3,836 feet, total depth 3,839 feet, dry and abandoned, salt water. Pointer Oil Co.'s No. 5 T. O. Wright, top sand 3,670 feet, total depth 3,675 feet, initial production 70 bbls. an hour. Nash & Bloxom's No. 3 F. Cole, top sand 3,817 feet, total depth 3,820 feet, initial production 20 bbls. in 20 minutes.

Prince Brothers' No. 1 Jackson-Atterberry, top sand 3,832 feet, total depth 3,833 feet, initial production 65 bbls. an hour. Sinclair Prairie's No. A-29 Mayfield, top sand 3,801 feet, total depth 3,804 feet, initial production 30 bbls. in 15 minutes. Sun Oil Co.'s No. A-9 A. V. Ritch, top sand 3,696 feet, total depth 3,697 feet, initial production 50 bbls. an hour. Texas-Canadian's No. B-2 J. R. Irion, top sand 3,774 feet, total depth 3,777 feet, initial production 20 bbls. in 30 minutes; No. B-3 J. R. Irion, top sand 3,737 feet, total depth 3,738 feet, initial production 20 bbls. in 20 minutes.

Upshur County

Arkansas Drilling Co.'s No. 2 E. Johnson, top sand 3,654 feet, total depth 3,659 feet, initial production 40 bbls. an hour. B. G. Barnett's No. 1 Bradshaw, top sand 3,668 feet, total depth 3,669 feet, initial production 60 bbls. an hour. Cabot Carbon Co.'s No. 7 L. Graves, top sand 3,636 feet, total depth 3,643 feet, initial production 106 bbls. an hour. Nathan Oil Co.'s (formerly Geo. Culver and others') No. A-1 Victory, top sand 3,621 feet, total depth 3,622 feet, initial production 49 bbls. an hour, 2-inch tubing. Magnolia Petroleum Co.'s No. 4 H. Fenton, top sand 3,727 feet, total depth 3,737 feet, initial production 80 bbls. an hour.

Mudge Oil Co.'s No. 6 Bland, top sand 3,698 feet, total depth 3,758 feet, initial production 128 bbls. an hour. Pace & Mitcham's No. 9 Adkins, top sand 3,769 feet, total depth 3,770 feet, initial production 30 bbls. an hour, 1-inch choke. E. L. Smith's No. 10 E. A. Watts, top sand 3,639 feet, total depth 3,651 feet, dry and abandoned, salt water. Vera Oil Co.'s No. 3 H. B. Owens, top sand 3,822 feet, total depth 3,831 feet, initial production 50 bbls. an hour. J. K. Wadley's No. 1 L. Brawley, top sand 3,774-76 feet, total depth 3,812 feet, sand, dry and abandoned, salt water.

Anderson County—Cayuga Area

Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1-B Royall and Cone, total depth 4,099 feet, initial production 117 bbls. first 24 hours through three-eighths inch choke.

Henderson County

Taubert and McKee's No. 1 M. T. Dobbs, dry and abandoned 4,048 feet, 4 miles east of Malakoff.

T. L. Wynn and others' No. 1 Forrester, top Woodbine 4,290-95 feet, dry and abandoned 4,367 feet.

Anderson County—Wildcat

Gulf Production Co.'s No. 1 Rogers, dry and abandoned 5,773 feet.

Van Zandt County—Van Field

Pure Oil Co.'s No. 6 Blackstock, total depth 2,905 feet, initial production 64 bbls.

Van Zandt County—Wildcat

Monterrey Oil Co.'s No. 1 Eaton, dry and abandoned 4,758 feet.

West Texas Fields

(Continued from Page 73)

County. This test went to 5,654 feet in granite wash and lime.

Production in the district for the week averaged 55,835 bbls., a drop of 5,825 bbls. per day. The proration allowable has dropped from 6.62 per cent to 5.89 per cent due to many large completions, especially in Wheeler County. The allowable is 58,800 bbls. per day, with some companies taking more oil than they care to at this time. The Railroad Commission did not allow their withdrawal from part of their connections. There are 2,284 producing wells in the district with 393,205 bbls. potential, 35,710 bbls. marginal oil and 2,743 bbls. exempt oil.

Heretofore wells having a large potential when brought in have retained the allowable, although known to decrease in production and the commission has ruled that after 90 days' producing the wells will be reduced from 10 to 50 per cent according to their caliber when completed. If the operators are not satisfied new potential gauges will be taken. Wheeler County wells decrease rapidly and few new potential gauges are expected to be asked for.

WEST TEXAS COMPLETIONS

Crockett County

Eppenauer Drilling Co.'s No. 1-C Powell, top pay 2,515 feet, total depth 2,556 feet, shot with 340 quarts from 2,468-2,555 feet, acidized, initial production 655 bbls. in 22 hrs.

Ector County

Sunray-Llano Oil Co.'s No. 4 Jones, top pay 3,565 feet, total depth 3,666 feet, shot with 260 quarts from 3,550-3,656 feet, initial production 153 bbls. per day.

Howard County

Dorn and others' No. 1 Kloh, top pay 2,585 feet, total depth 2,791 feet, shot with 550 quarts from 2,570-2,791 feet, initial production 54 bbls. in two hours.

Kendall County

R. P. Coons' No. 1 Lawhorn, temporarily abandoned at 800 feet.

McCulloch County

George Poulter's No. 1 Wyres, gap pay 768 feet, total depth 783 feet, initial production 2,500,000 feet of gas.

Pecos County

Cardinal Oil Co.'s No. 1 White and Baker, dry and abandoned at 2,081 feet. Gulf Production Co.'s No. 5 White and Baker, dry and abandoned at 2,051 feet. Broun and others' No. 11 Tippett, top pay 532 feet, total depth 715 feet, plugged back to 600 feet, initial production 60 bbls. per day, pumping. Corvette Oil Co.'s No. 17-B Monroe, top pay 471 feet, total depth 518 feet, initial production 218 bbls. per day, pumping. Cardinal Oil Co.'s No. 33-E Tippett, top pay 609 feet, total depth 610 feet, initial production 320 bbls. of oil and 33 bbls. of sulphur water per day, pumping.

Upton County

Texas Pacific Coal & Oil Co.'s No. 4-C Lane, top pay 2,240 feet, total depth 2,315 feet, initial production 320 bbls. per day, pumping.

Ward County

California Co.'s No. 25 Durgin, top pay 2,433 feet, total depth 2,542 feet, initial production 1,018 bbls. per day; No. 26 Durgin, top pay 2,332 feet, total

depth 2,542 feet, shot with 200 quarts from 2,330-2,540 feet, initial production 963 bbls. per day.

NORTH TEXAS COMPLETIONS

Archer County

C. L. Abercrombie's No. 1 Abercrombie and Taylor, total depth 1,408 feet, dry and abandoned. L. T. Burns' No. 4 E. E. Hildebrand, total depth 1,162 feet, top pay 1,149 feet, initial production 75 bbls. per day; No. 5 E. E. Hildebrand, total depth 1,161 feet, dry and abandoned; No. 1 C. R. Seals, total depth 1,165 feet, top pay 1,152½ feet, initial production 25 bbls. per day. A. E. Crenshaw and H. DeLee's No. 18 L. F. Wilson estate (formerly British-American lease), total depth 655 feet, dry and abandoned. Cullum and Alexander's No. 34 Falls, total depth 1,090 feet, top pay 1,071 feet, initial production 20 bbls. per day. Cullum and Sinclair Prairie's No. 13 Falls (Scranton lease), total depth 1,123 feet, top pay 1,099 feet, initial production 200 bbls. per day.

F. H. E. Oil Corp.'s No. 4 W. T. Richardson, total depth 1,438 feet, top pay 1,429 feet, initial production 45 bbls. per day; No. 5 W. T. Richardson, total depth 1,446 feet, top pay 1,436 feet, initial production 12 bbls. per day; No. 7 W. T. Richardson, total depth 1,445 feet, top pay 1,438 feet, initial production 30 bbls. per day; No. 8 W. T. Richardson, total depth 1,463 feet, top pay 1,445 feet, initial production 15 bbls. per day. Gray Drilling Co.'s No. 10 W. Ferguson, total depth 669 feet, dry and abandoned. W. B. Hamilton's No. 1 A. D. Britton, total depth 1,761 feet, dry and abandoned; No. 21 Cartwright Production Co., total depth 1,147 feet, top pay 1,131 feet, initial production 150 bbls. per day. N. H. Martin & Son's No. 1 M. P. Andrews, total depth 1,008 feet, dry and abandoned. Peery and Boller's No. 2 W. T. Richardson, total depth 1,441 feet, top pay 1,435 feet, initial production 150 bbls. per day. Perkins and Cullum's No. 13 C. L. Abercrombie, total depth 1,227 feet, top pay 1,207 feet, initial production 25 bbls. per day pumping; No. 161 Falls, total depth 1,110 feet, casing collapsed, junked and abandoned; No. 162 Falls, total depth 1,162 feet, top pay 1,141 feet, initial production 80 bbls. per day; No. 163 Falls, total depth 1,109 feet, top pay 1,087 feet, initial production 100 bbls. per day. Petroleum Producers' No. 17 Harmonson estate, total depth 984 feet, dry and abandoned; No. 7-E J. T. Richardson, total depth 1,253 feet, top pay 1,234 feet, initial production 150 bbls. per day. D. L. Wolf and others' No. 1 W. Finley, total depth 702 feet, dry and abandoned.

Baylor County

Ray and Staniforth's No. 2-A W. H. Portwood, total depth 1,394 feet, top pay 1,380 feet, initial production 275 bbls. per day.

Clay County

Metzner and Burns' No. 8 L. Thornberry, total depth 339 feet, top pay 329 feet, initial production 8 bbls. per day.

Cooke County

F. W. Merrick and others' No. 1 A. Knabe, total depth 821 feet, top pay 720 feet, initial production 165 bbls. per day.

Jack County

A. P. Nicholson, trustee's No. 1 Ida M. Shields, total depth 604 feet, dry and abandoned.

Wichita County

George W. Cooper's No. 30 Waggoner Brothers, total depth 1,872 feet, dry and abandoned. Dinsmore and Stipe's No. 7 T. L. Burnett, total depth 687 feet, dry and abandoned. Golding and Cochran's No. 16-C Waggoner Brothers, abandoned location. King Royalty Co. and others' No. 5-J Waggoner estate, total depth 1,564½ feet, top pay 1,557 feet, initial production 250 bbls. per day. George Proctor's No. 2 George L. Dobie, total depth 1,051 feet, dry and abandoned. L. T. Burns' No. 19 T. F. Mitchell, total depth 1,567 feet, dry and abandoned. Wichita Production Co.'s No. 1 Lillian Chilson, total depth 1,885 feet, dry and abandoned.

Young County

Brandenburg and others' No. 8 Cullers, total depth 580 feet, dry and abandoned. S. D. Glover's No. 16 C. W. Johnson, total depth 523 feet, top pay 506 feet, initial production 4 bbls. per day. Gorsuch Oil Co.'s No. 14 O. W. Matthews, total depth 780 feet, dry and abandoned. H. H. Gracey and others' No. 1 T. Harmon, total depth 608 feet, dry and abandoned. E. L. Kessler and others' No. 1 Oliver Loving and others, total depth 916 feet, dry and abandoned. White and Duncan's No. 1 H. N. Tucker, total depth 1,010 feet, dry and abandoned. Wo-Mac Oil Co.'s No. 13 Stephens-Roach Co., total depth 754 feet, dry and abandoned. Nash and Windfohr's No. 17 Graham-Vick, total depth 2,610 feet, top pay 2,600 feet, initial production 90 bbls. per day.

PANHANDLE COMPLETIONS

Gray County

Empire Gas & Fuel Co.'s No. 2 Jackson, top pay 3,200 feet, total depth 3,273 feet, shot 400 quarts from 3,193-3,268 feet, initial production 155 bbls. Kewanee Oil & Gas Co.'s No. 8 Smith Estate, top pay 3,163 feet, total depth 3,256 feet, shot 380 quarts from 3,150-3,245 feet, initial production 320 bbls. day, pumping. Skelly Oil Co.'s No. 25 Schaffer, top pay 3,230 feet, total depth 3,329 feet, shot 600 quarts from 3,223-3,338 feet, initial production 483 bbls. day, pumping.

Hutchinson County

Phillips Petroleum Co.'s No. 4 M. Johnson, top pay 3,094 feet, total depth 3,102 feet, initial production 140 bbls. oil and 34 bbls. water, day, pumping; No. 4 Jordan, top pay 2,935 feet, total depth 3,020 feet, initial production 211 bbls. day, pumping; No. 2 Ludlum, top pay 2,983 feet, total depth 3,028 feet, shot 350 quarts from 2,950-3,028 feet, initial production 145 bbls. day, pumping. Harry Stekoll Oil Producer's No. 5 Whittenburg, total depth 3,000 feet, shot 200 quarts from 2,920-3,000 feet, initial production 457 bbls. day, pumping; No. 6-G Whittenburg, top pay 3,013 feet, total depth 3,052 feet, shot 200 quarts from 2,998-3,045 feet, initial production 250 bbls. day, pumping.

Moore County

Texoma Natural Gas Co.'s No. 4-P Sneed, top pay 2,461 feet, total depth 2,985 feet, initial production 19,700,000 feet gas.

Wheeler County

Bell Oil & Gas Co.'s No. 2 Evans, dry and abandoned 2,503 feet. Elbar Oil Corp.'s No. 7 Noel, total depth 2,441 feet, plugged back to 2,434 feet, initial production 250 bbls. oil and 43 bbls. water day, pumping. Magnolia Petroleum Co.'s No. 1 Mankin, top pay 2,185 feet, total depth 2,230 feet, initial production 146 bbls. day, pumping.

RANGER DISTRICT

Brown County

Shaffer's No. 1 Taber, total depth 2,470 feet, initial production 10 bbls. oil and 20 bbls. water per day. Tillman's No. 1 Dwathney, dry and abandoned 1,495 feet. Sher-Ritt Oil Co.'s No. 4-A Densiman, total depth 1,199 feet, plugged back to 1,182 feet, shot, initial production 35 bbls. day. Ahlausen's No. 1 Guthrie, dry and abandoned 666 feet; No. 1 Henderson, dry and abandoned 472 feet. Simon's No. 1 Tungate and others, total depth 1,900 feet, initial production 30 bbls. oil and 15 bbls. water.

Lampasas County

Lucy Creek Oil Co.'s No. 1 Garner, dry and abandoned 300 feet.

Callahan County

Beams and Humble Oil & Refining Co.'s No. 1 Dyer, dry and abandoned 1,340 feet. Lorenzen's No. 1 Clark, dry and abandoned 4,205 feet. Ungren and Frazer's No. 6-C Jackson, total depth 1,223 feet, initial production 10 bbls. Wright and others' No. 1 Jones dry and abandoned 1,432 feet.

Coleman County

Eppenauer Drilling Co.'s No. 1 Banister, total depth 1,884 feet, initial production 50 bbls. Brookover's No. 1 Gill, dry and abandoned 900 feet. Nystal's No. 1 Halt, temporarily abandoned 890 feet. Hinds and Simmons' No. 1 Ferguson Brothers, total depth 1,239 feet, initial production 5 bbls.

Eastland County

Conklin and others' No. 1 Leazer, total depth 2,806 feet, acidized twice, initial production 10 bbls. day. Lone Star Gas Co.'s No. 1 Boggs, total depth 3,436 feet, initial production 100 bbls. day. Van Eman's No. 1 Pippin, dry and abandoned 590 feet.

Palo Pinto County

Palo Pinto Oil Corp.'s No. 11 Strawn Coal Co., total depth 3,012 feet, initial production 20,640,000 feet gas per day. Nelson Oil Syndicate's No. 1 Rogers, total depth 3,077 feet, shot with 40 quarts from 3,024-3,077 feet, initial production 8,330,000 feet gas.

Shackelford County

Roeser and Pendleton and Humble Oil & Refining Co.'s No. 1 Morris and Buire, dry and abandoned 1,665 feet. Owens-Snebold Oil Co.'s No. 1 Davis, total depth 1,930 feet, plugged back to 1,629 feet, initial production 69 bbls. day. Texas Central Oil Co.'s No. 2 Arharat, total depth 818 feet, initial production 45 bbls. Warren's No. 4 Smith, dry and abandoned 960 feet. Anderson and Blocker and others' No. 1 Davis, dry and abandoned 1,720 feet. Charter Oil Co.'s No. 1 Mills, dry and abandoned 1,636 feet. Hoffman and Page's No. 2 Morris and Buie, total depth 1,619 feet, initial production 38 bbls. in 18 hours. Reliance Oil & Royalty Co. and others' No. 3 Davis, total depth 1,620 feet, initial production 50 bbls. day. Rhodes' No. 1 Williams, dry and abandoned 1,688 feet.

Throckmorton County

Glengary Oil Co.'s No. 1 Brown, dry and abandoned 892 feet. Humble Oil & Refining Co.'s No. 1-A Davis, temporarily abandoned 587 feet; No. 2-A Davis, temporarily abandoned 567 feet.

Gasoline Awards Made to Three Refining Companies

The Board of Review, established under and proceeding in accordance with Article IV of the Code of Fair Competition for the Petroleum Industry has considered appeals from and made awards to the companies (and in the amounts) listed below:

	Bbls.
Col-Tex Refining Co., Dist. 5-A	20,000
Sinclair Refining Co., Dist. 3	60,156
Standard Oil Co. (Ind.) Dist. 3	276,650
	356,806

At the time of making these awards the Board of Review deemed it best to undertake the procurement of the necessary gasoline to provide for the awards by an order on the National Coordinator to procure turn-backs from companies and District Agencies for this purpose.

Whereas, the National Coordinator under Article IV of the code informs me that adjustments and turn-backs of the April gasoline allowables make available only 150,000 bbls. of gasoline for the satisfaction of the awards.

Now, therefore, pursuant to the authority vested in me by the National Industrial Recovery Act, the Code of Fair Competition for the Petroleum Industry and Executive Order 6260-A of August 28, 1933, the amount of gasoline which may be produced during April, 1935, is increased by 150,000 bbls. to fulfill the awards of the Board of Review, acting in accordance with the provisions of Article IV of the Code. As the 150,000 bbls., herein made available, plus the 150,000 bbls. released from the April allowables by adjustments and turn backs from companies and district agencies, creates a sum less than a total number of barrels awarded by the Board of Review, it is ordered that each company receiving an award shall participate in the 300,000 bbls., to be distributed in the same proportion that its award bears to the total awards of the Board of Review.

Approved and promulgated this 29th day of April, 1935.

(Signed) HAROLD L. ICKES,
Administrator of the Code of Fair Competition for the Petroleum Industry, and Secretary of the Interior.

Modern Services Increase Montana Gasoline Prices

Gasoline prices in Montana cannot be reduced unless motorists in that state are willing to forego the conveniences of the modern service station where they usually get free air, free water, washrooms, free oil-draining and greasing service, and the other services which the public demands of modern filling stations. This was the verdict of the select committee on price of gasoline of the Montana house of representatives, which made a study of gasoline prices in that state. The committee found that the average cost of refining of all companies operating in the state was approximately 8¼ cents a gallon for first grade gasoline. To this it is necessary to add 6 cents a gallon for the federal and state gasoline taxes. Under the petroleum code the dealers' margin of profit is 4 cents a gallon, making the total price of the gasoline 18¼ cents a gallon, to which must be added the costs of transportation from the refinery to the dealer, which averages 3 cents a gallon.

Higher Powered Fuels Greatest Future Need

The oil industry in another century will be called upon to furnish a fuel so powerful that it will make possible interplanetary travel, according to Thomas Midgley, vice president of the Ethyl Gasoline Corp. and widely known in the oil industry due to his discovery of tetraethyl lead now an ingredient of the great bulk of motor sold in this country.

Mr. Midgley made a forecast this week of "Chemistry of the Next Century" which opened the eighty-ninth meeting of the American Chemical Society of which he is chairman of the board of directors. In his address which was also a part of the celebration of the three-hundredth anniversary of the nation's chemical industries made many predictions regarding trends over the next century which have been widely quoted including the two-hour day, eggs as large as footballs, cures for most diseases of today, visiting by television and undisturbed sleep.

"The greater strength and lightness of the materials of construction of the future will develop increased speeds and safety of transportation," said Mr. Midgley. "Like the return of prosperity, the 1,000-mile-an-hour airplane is just around the corner.

"The fire-proofing of hydrogen or the commercial synthesis of helium would serve only to extend a type of transportation which is already in existence. These things are not enough by which to gauge correctly the developments within the next century.

"Engineering is already waiting for chemistry to give it a fuel which will be capable of releasing more energy per pound than is required to lift that pound out of the earth's gravitational field. Given such a fuel, interplanetary travel will become a possibility. Gasoline, explosives, or other materials which depend on combustion for their release of energy fall short of this requirement; so much so that a really new magnitude of energy storage must be looked for. This perhaps may be found in radioactivity.

"So far, the inability to control or direct such energy liberation prevents its utilization for the purpose at hand, but within the next century this difficulty should be overcome. It would seem most likely that some form of synthesis of elements, or their equivalent, of the proper

16 months

in vicious black sulphur water had no effect on

The Sharples Solvents Corporation, Wyandotte, Mich., put down a well and found that the only water available was a quite vicious black sulphur water. Ordinary pipe used in the discharge column and shaft of the air lift equipment had to be taken out and replaced three or four times a year.

Then Toncan Iron Pipe, installed by the Sterling Pump Corp., South Bend, Ind., was given a trial because of its past performance where corrosion was a factor. In December, 1934, the pump was pulled for the purpose of inspecting the pipe. Results were surprising — after 16 months of service no noticeable deterioration could be found, and the original pipe was reinstalled without a change of any kind.

This is typical of the performance of this modern alloy of refined open hearth iron, copper and molybdenum wherever severely corrosive conditions are encountered. You can read all about Toncan Iron Pipe and its records in industrial service in "Pipe for Permanence." Ask for a copy of this interesting book.

REPUBLIC STEEL

Republic Steel
CORPORATION

GENERAL OFFICES · · · YOUNGSTOWN, OHIO

active type would be the logical line of attack. Be this as it may, the major premise is that, within a century, the chemist will offer to the engineer a 'fuel,' capable of releasing in useful form more energy than will be required to lift itself through the earth's gravitational field.

"This, in a short while, will result in making interplanetary transportation possible. I should not care to give the impression that interplanetary transportation will become a commonplace immediately. Considerable preparation of environment will be necessary. Mars will need water, Venus a new atmosphere, all of which will mean work for the future chemists and engineers, and, after all, why should we not leave something to be accomplished in the century after the next?"

Market in Chicago Area Is Improved by A.P.I.'s Stand

(Continued from Page 69)

tion. Incubators in some cases have only now been put to work.

Heating Oils

In heating oils, distributors in March and April began letting their supplies run down to what normally would be satisfactory levels for the season, but low temperatures forced late-season orders and cases of calls for diverted shipments of material have been frequent. This applies to good distillates and gas oils, of which there is a distinct scarcity.

Industrial Oils

The industrial products, gas and fuel oils, are perhaps firmer than earlier. Demand has been moderate but supply has been influenced by large-scale cracking to a point where it is more difficult for consumers to get the products they want. Prices are unchanged to a shade stronger.

Lubricants

Lubricants show little change. Inquiry has been a little better but actual business still seems to be lagging.

Wax

Wax has been tending toward slightly better market conditions recently, on a fair volume of business and reports of a little better inquiry trend. Prices are unchanged.

Naphthas

The firming in gasoline has injected a trifle better sentiment into the naphthas and solvents, but quoted prices are unchanged on the bulk of the business.

Coke

Petroleum coke has been easing a little seasonally, and various grades are ruling a trifle lower. Business is moderate in these materials.

World Distance Record Made by Diesel Tanker

With its Diesel engines running continuously from Texas to India—and then back to California—the motorship "Daylight" recently made what is said to be the world's longest non-stop voyage for a Diesel-driven vessel. Although head seas and head winds caused a 13.3 per cent propeller slip, the average speed was 10.1 knots per hour.

The oil tanker that established this distance record is owned and operated by Socony-Vacuum Oil Co., Inc., of New York. A 3,200-horsepower Sun-Doxford Diesel main engine is accompanied by a pair of 120-horsepower Cooper-Bessemer Diesel generator sets. Despite the large total of Diesel horsepower, the fuel consumption is low. More than enough fuel oil can be carried to take the ship around the world, and at the same time not encroach very seriously on payload capacity.

After the first leg of the journey, to Bombay, when the engines were stopped, after running 51½ consecutive days and traveling 12,497 nautical miles, only a few minor adjustments were required. The return trip required 42 days, 11 gallons of lubricating oil being used per 24-hour service, including all auxiliaries.

Volatility Standardization Suggested by Engineers

(Continued from Page 12)

association. In turn, Mr. Williams pledged his future support of the association's activities.

Dr. Huntington's Paper

In discussion following Dr. R. L. Huntington's paper on the "Stage Separation of Oil and Gas", the question was raised whether the procedure suggested would eliminate the natural gasoline plant. The paper was published in The Oil and Gas Journal of May 2. The results of the work done by Dr. Huntington at the University of Oklahoma indicated a considerable quantity of gasoline could be retained in the crude by reducing by stages the pressure of the mixture as it comes from the well but he did not think the procedure could be carried to the point where the normal work of the gasoline plant would be eliminated.

Gasoline Sales 3.5 Per Cent Above Last Year's

February sales of gasoline by states as reported by the American Petroleum Institute show a total of 1,074,587,000 gallons, an increase of 3.51 per cent over the total of a year ago. The data in the following table are based on the quantity of gasoline sold or offered for sale as reported by wholesalers and dealers in the states listed.

	Month of Feb., 1935 gallons	Month of Feb., 1934 gallons
Alabama	11,625,000	10,616,000
Arizona	5,713,000	5,589,000
Arkansas	9,673,000	9,696,000
California	103,139,000	94,112,000
Colorado	10,788,000	6,639,000
Connecticut	14,295,000	13,201,000
Delaware	2,442,000	2,273,000
Dist. of Columbia	7,076,000	6,792,000
Florida	23,861,000	21,310,000
Georgia	18,848,000	16,687,000
Idaho	3,487,000	3,592,000
Illinois	64,459,000	64,560,000
Indiana	26,864,000	27,582,000
Iowa	23,144,000	25,453,000
Kansas	25,911,000	26,855,000
Kentucky	13,024,000	11,789,000
Louisiana	12,765,000	12,340,000
Maine	5,365,000	4,915,000
Maryland	12,612,000	11,623,000
Massachusetts	31,847,000	32,926,000
Michigan	48,933,000	51,948,000
Minnesota	23,302,000	24,524,000
Mississippi	9,263,000	8,821,000
Missouri	31,862,000	34,071,000
Montana	4,925,000	4,374,000
Nebraska	16,881,000	16,173,000
Nevada	1,548,000	1,485,000
New Hampshire	3,604,000	3,328,000
New Jersey	42,079,000	39,367,000
New Mexico	4,589,000	3,561,000
New York	88,893,000	87,616,000
North Carolina	20,521,000	17,719,000
North Dakota	4,411,000	4,420,000
Ohio	60,885,000	60,967,000
Oklahoma	22,194,000	21,639,000
Oregon	11,126,000	10,862,000
Pennsylvania	71,310,000	67,884,000
Rhode Island	6,237,000	5,845,000
South Carolina	10,154,000	9,117,000
South Dakota	6,260,000	6,846,000
Tennessee	14,347,000	15,073,000
Texas	66,593,000	58,631,000
Utah	4,301,000	3,947,000
Vermont	2,198,000	2,170,000
Virginia	17,597,000	15,966,000
Washington	18,569,000	17,094,000
West Virginia	9,557,000	8,208,000
Wisconsin	23,188,000	25,714,000
Wyoming	2,322,000	2,252,000
Total	1,074,587,000	1,038,172,000
Daily average	38,378,000	37,078,000
Change from previous year:		
Total change	+36,415,000	
Percentage change in daily average	+3.51%	

GLEICHEN GAS PROJECT

GLEICHEN, Alberta, May 4.—H. M. Hunter, geologist of Canadian Natural Gas, Light, Heat & Power Co. of Calgary, recently addressed the Gleichen board of trade in regard to the possibility of a local natural gas supply. Some drilling has been done in the Gleichen area at various times, including a test by the A. W. Dingman interests in 1912. This well gave gas shows around 800 feet with a larger flow at 1,500 feet. Unless larger producers are developed, several wells will be required to give an adequate supply for the town.

Eastern Gasoline Prices Continue Upward Trend

(Continued from Page 25)

go has been sold for June lifting at 5 cents for 64-66 material. Domestic prices for white gasolines in New York Harbor range from 5½ to 6 cents depending on octane.

Residual fuel oil prices are firm both here and the Gulf. The demand for bunker material is improving but the industrial movement continues slow. Bunker C is $1.15 and Diesel fuel oil, $1.89.

Some sellers think the immediate outlook for bright stocks and paraffin base neutrals is better. Prices are unchanged from last week. There has been some improvement in the demand for crude scale wax, but otherwise the market for this product is unchanged.

West Texas Wildcats

(Continued from Page 73)

DAWSON COUNTY

Adams & Turner's No. 1 John Robinson, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.R.R. Sur.
T.D. 4,860 ft.; to abandon.

O. F. Dickinson, trustee's No. 1 C. H. Dooks, 368 ft. from S and 330 ft. from E of SW cor., Sec. 4, Blk. H, E.L. Ry. Co. Sur.
Location.

ECTOR COUNTY

Atlantic Oil Prod. Co.'s No. 1 T. P. Land Trust, 440 ft. from N and W of SE Sec. 11, Blk. 43, Twp. 1s, T.&P. Sur.
T.D. 4,391 ft.; plugged back to 4,255 ft.; swabbed 18 bbls. in 4 hrs., 25 per cent water.

Barnsdall Oil Corp.'s No. 2 Smith, 330 ft. from S and W lines of Sec. 1, Blk. 43, Twp. 1s, T.&P. Sur.
Elev. 3,064 ft.; drlg. 3,271 ft.

W. A. Black & Sons' No. 3 Connell, 330 ft. from S and 1,310 ft. from W lines of Sec. 1, Blk. B-16, P.S.L. Sur.
Drlg. 3,326 ft.

Callahan et al's No. 1 Connell, 330 ft. from N and 990 ft. from W, Sec. 10, Blk. 30, Twp. 1s.
T.P. 3,515 ft.; T.D. 3,642 ft.; cleaning out after shot; swabbed and flowed 180 bbls. in 24 hrs.

Empire Gas & Fuel Co.'s No. 1 Cummins. 440 ft. from S and E, Sec. 10, Blk. 45, Twp. 1n, T.&P. Sur.
Drlg. 3,700 ft.

Gulf Prod. Co.'s No. 1 Goldsmith, C of NW Sec. 10, Blk. 44, Twp. 1s, T.&P. Sur.
Drlg. plug 3,990 ft.

International Pet. Corp.'s No. 1 Cowden, 660 ft. from S and E, Sec. 25, Blk. 44, Twp. 2s, T.&P. Sur.
T.P. 4,147 ft.; T.D. 4,270 ft.; swabbing 45 bbls. daily.

Landreth Prod. Co.'s No. 1 Blakeney, 440 ft. from N and E, Sec. 28, Blk. 43, Twp. 1n, T.&P. Sur.
Cellar.

Landreth Prod. Co.'s No. 1-B O. B. Holt, 660 ft. from N and 1,980 ft. from E lines of Sec. 19, Blk. "A," P.S.L. Sur.
Drlg. 2,670 ft.

Landreth Prod. Co.'s No. 1 Cowden Heirs, 440 ft. from S and W, Sec. 18, Blk. 44, Twp. 1n, T.&P. Sur.
Top lime 3,708 ft.; drlg. 3,944 ft.

Landreth Prod. Co.'s No. 2 Scharbauer, 2,200 ft. from N and 440 ft. from W, Sec. 13, Blk. 4.
Drlg. 1,123 ft.

Penrose et al's No. 1 Kloh & Rumsey, 2,310 ft. from S and E, Sec. 31, Blk. 45, Twp. 1s, T.&P. Sur.
Elev. 3,154 ft.; top lime 3,895 ft.; drlg. 4,404 ft.

C. L. Peters' No. 1 Connell, 330 ft. from N and E lines of NW of Sec. 12, Blk. B-16, P.S.L. Sur.
Drlg. 727 ft.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Kinkel, 190 ft. from N and 550 ft. from E, Sec. 237, A.T.&S.F. Sur.
S.D. 225 ft.; setting csg.

FISHER COUNTY

George Callihan et al's No. 1 Herring, 2,310 ft. from S and 330 ft. from W lines of Sec. 192, Blk. 1, B.B.B.&C. Sur.
Elev. 1,804 ft.; drlg. 2,033 ft.

Tide Water Oil Co. et al's No. 1 W. E. Hittson et al, 1,320 ft. from N and 660 ft. from W, Sec. 177, Blk. 2, H.&T.C. Sur.
Drlg. 248 ft.

GARZA COUNTY

N. L. Richards' No. 1 Sullivan, 330 ft. from N and W, Sec. 3, Blk. 5, K. Aycock Sur.
Elev. 2,584 ft.; S.D. 2,345 ft.

GLASSCOCK COUNTY

Luce & Pickens' No. 2 Turner, 1,650 ft. from N and 2,310 ft. from E lines of Sec. 19, Blk. 33, Twp. 2s, T.&P. Sur.
Drlg. 2,311 ft.

John I. Moore et al's No. 1 J. S. McDowell, 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur.
Topped lime 9,471 ft.; show oil and gas 9,484-9,520 ft.; cmtd. 7⅝-in. csg. at 9,470 ft.; increase oil 9,594-9,600 ft. and 9,633-55 ft.; S.D. 9,936 ft.; to drill deeper.

HOWARD COUNTY

Clay Bros. & White's No. 1 Read, 330 ft. from S and 1,650 ft. from W, Sec. 46, Blk. 30, Twp. 1n, T.&P. Sur.
S.D. 2,200 ft.

John I. Moore et al's No. 1 Snyder, 330 ft. from S and W, Sec. 28, Blk. 30, Twp. 1s, T.&P. Sur.
Drlg. 120 ft.

Iron Mountain Oil Co.'s No. 6 Reed, 330 ft. from S and W lines of Sec. 46, Blk. 30, Twp. 1n, T.&P. Sur.
S.D. 2,151 ft.

Slagel's No. 1 Foster, 990 ft. from S and 330 ft. from W, Sec. 43, Blk. 29.
T.D. 3,013 ft.; plugged back to 2,760 ft.; Putting on pump.

JEFF DAVIS COUNTY

C. M. Joiner's No. 1 Jones & Coffield, 770 ft. from N and 1,322 ft. from E. Sec. 1, Blk. 3, H.&T.C. Sur.
Drlg. 1,176 ft.

JONES COUNTY

Campbell et al's No. 1 Rowell, in E half of W half, Sec. 6, T.&P. Sur.
T.D. 950 ft.; fishing.

Campbell et al's No. 1 Enevill, 1,400 ft. from N and 270 ft. from W, Sec. 2, M.E.&P. Sur., ½ mile S of Anson.
Drlg. 2,272 ft.

Dr. C. E. Johnson's No. 1 Young, 1,800 ft. from N and 750 ft. from W of SE 200 acres of B. Travenio Sur.
Fishing 2,000 ft.

Owen et al's No. 1 Johnson & Dunwoody, 3,750 ft. from S and 330 ft. from W. Sec. 6, Blk. 17, T.&P. Sur.
Spudded and S.D.

Robb & Brewer's No. 1 Evans, 200 ft. from S and E lines of N half of Sec. 7, Blk. 15, T.&P. Sur.
Drlg. 2,034 ft.

Sandyridge Oil Co.'s No. 1 P. Jones, 660 ft. from S and W of NW¼, Sec. 5, Blk. 15, T.&P. Sur.
Set csg. 1,375 ft.

T. O. Shappell's No. 1 Steele, 330 ft. from N and 2,000 ft. from E lines of Sec. 10, Blk. 15, T.&P. Sur.
Drlg. 2,206 ft.

Ungren & Frazier et al's No. 1 Steele, 1,450 ft. from S and 200 ft. from W lines of Sec. 8, Blk. 10, C. Allen Sur.
Drlg. 1,270 ft.

LOVING COUNTY

D. C. Evans' No. 1 W. D. Johnson, 2,310 ft. from N and 1,650 ft. from W, Sec. 12, Blk. 57, Twp. 1, T.&P. Sur.
Fishing 2,050 ft.

Mason Oil Co.'s No. 1 Kyle, 1,980 ft. from S and E, Sec. 22, Blk. 55, Twp. 1, T.&P. Sur.
Drlg. 1,302 ft.

LYNN COUNTY

Hart Oil Co.'s No. 1 Edwards, 220 ft. from N and 200 ft. from W of SE Sec. 25, L.&S.V. Sur.
Elev. 3,112 ft.; drlg. 4,744 ft.

MARTIN COUNTY

Wright & Scott's No. 1 Flannigan, 330 ft. N and E, Sec. 22, Blk. 37, Twp. 1s, T.&P. Sur.
S.D. 100 ft. for csg.

MITCHELL COUNTY

Sawtell & Grueber's No. 1 Morrison.
S.D. 1,020 ft.

McCULLOCH COUNTY

Brock & Seward's No. 1 McCall, 2,250 ft. from S and 2,139 ft. from E lines of Sec. 2, John Ware Sur.
S.D. 763 ft.

Honea et al's No. 1 Cox, 450 ft. from S and 150 ft. from E, David Pope Sur.
S.D. 846 ft.

Geo. Poulter's No. 1 Dutton, 350 ft. from S and 450 ft. from E, Sec. 190, 2½ miles S of Poulter's gas well.
Drlg. 366 ft.

Skaggs & Brewer's No. 1 Dunn, 190 ft. from S and 570 ft. from E, Sec. 951, T. L. Hartig Sur.
Drlg. 907 ft.

PECOS COUNTY

Adams et al's No. 2 Masterson, 1,630 ft. from SE and 330 ft. from SW, Sec. 104, Blk. 10, H.&G.N. Sur.
Rigging up rotary.

C. R. Richards' No. 4 Courtney, 920 ft. from N and W, Sec. 78, Blk. OW, 360 ft. S of No. 2.
Rig.

Samwan Oil Co.'s No. 2 Masterson, 330 ft. from W and 990 ft. from S lines of Sec. 104, Blk. 10, H.&G.N. Sur.
Rigged up machine.

Trans-Tex. Oil Co.'s No. 1 Caldwell, 330 ft. from E line and 330 ft. from S line of Sec. 27, Blk. 40, Twp. 9, T.&P. Sur.
T.D. 1,856 ft.; testing water shut-off.

REAGAN COUNTY

Byrd-Frost Inc.'s No. 1 Boyd, 1,320 ft. from S and E of Sec. 6, Blk. E, L.V.S.&V. Sur.
Drlg. 2,770 ft.

Dobbs No. 1 Friend, 2,310 ft. from S and 660 ft. from W of Blk. 3, Wm. Allen Sur., 3 or 4 miles S of Big Lake.
Fishing 2,250 ft.

John Emch's No. 1 E. V. Belcher, 467 ft. from N and 1,400 ft. from E, Sec. 4, Blk. 4½, G.C.&S.F. Sur.
Rigged up machine.

Skelly Oil Co.'s No. 1-D H. S. Grayson, 1,980 ft. from N line and 660 ft. from W line of Sec. 33, Blk. 5, University Land Sur.
S.D. 9,967 ft.; bridged back to 3,100 ft. to shoot csg.

REEVES COUNTY

J. E. Cunningham's No. 1 Altman, 2,310 ft. from N line and 1,980 ft. from E line of Sec. 1, C. C. Wyatt Sur.
Top Delaware sand (by driller) 3,815 ft.; T.D. 4,090 ft.

Herbert Oil Co.'s No. 1 Williams & Walker, 5,280 ft. from S and 1,320 ft. from E, Sec. 17, Blk. 6, H.&G.N. Sur.
Drlg. 838 ft.

K. Slack et al's No. 1 Reeves, 1,980 ft. from N and W, Sec. 20, Blk. 56, P.S.L. Sur.
Spudded.

RUNNELS COUNTY

Dennis et al's No. 1 Wash, 550 ft. from N and 560 ft. from E of W half, Sec. 122, E.T.R.R. Sur.
Spudded and S.D.

Melrose Oil Co.'s No. 1 L. P. Woods, 150 ft. from NE lines and 3,475 ft. from W

line of survey, Willett Holmes Sur. No. 100.
S.D. 2,507 ft.
R. Wells' No. 1 James, 396 ft. from N and 330 ft. from E of James tract in Sec. 16. D. Diaz Sur.
S.D. 1,100 ft.

SCHLEICHER COUNTY

John M. Cooper et al's No. 1 Bert Page, 1,290 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. L, G.H.&S.A. Sur.
Drlg. 6,051 ft.
W. C. Proctor et al's No. 1 Judkins & Spencer, C SW¼ Sec. 4, Blk. V.28.
Fishing 212 ft.

SCURRY COUNTY

M. L. Goss et al's No. 1 J. E. Murphy, 330 ft. from N and 1,650 ft. from E, Sec. 114, Blk. 97, H.&T.C. Sur.
Set csg. 542 ft.
McLaughlin's No. 1 Allen, 1,331 ft. from N and 1,338 ft. from E, Sec. 298, Blk. 97.
S.D. 1,795 ft.; to drill ahead.

STONEWALL COUNTY

Barnsdall Oil Co.'s No. 1 S. Young, 350 ft. from N and E, Sec. 26, Austin & Williams Sur. 349.
Rigged up cable tools.
Merry Bros. and Perrini et al's No. 1 Williams, C SW of SW Sec. 6, Blk. C, A.B. &M. Sur.
S.D. 3,330 ft.

SUTTON COUNTY

Teas et al's No. 1 Mower, 1,980 ft. from S and W of Sec. 39, Blk. 5, T.W.&N.G. Sur.
Top White lime 4,527 ft.; S.D. 4,750 ft.
Paul C. Teas' No. 1 G. S. Allison, 660 ft. from S and W, Sec. 49, Blk. A, G.W.T.&P. Sur.
Location.

TAYLOR COUNTY

Eastland Oil Co.'s No. 1 Tittle, 660 ft. from N and W, Sec. 37, Blk. 19, T.&P. Sur., 1 mile NE of Trent.
Machine.

TOM GREEN COUNTY

Jacobs et al's No. 2 DeLong, 150 ft. from N and 450 ft. from E, James Webb Sur. No. 83.
Drlg. 79 ft.

UPTON COUNTY

Baldridge Oil Co.'s No. 1 S. Peck, 440 ft. from S and E, Sec. 29, Blk. 41, Twp. 4s. T.&P. Sur.
Elev. 2,890 ft.; T.D. 3,680 ft.; underreaming.
T.P. Coal & Oil Co.'s No. 1 Cordova Union Land, 2,406 ft. from E and 330 ft. from N, Sec. 33, Blk. 1.
Rigged up machine.
Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. Sur.
Drlg. 12,576 ft.
Humble Oil & Ref. Co.'s No. 1 Pollock, C of NW, Sec. 4, Blk. M.
Fishing 4,943 ft.
King Mountain Pet. Co.'s No. 1 Sherk, 330 ft. from S and W, Sec. 29, Blk. 1, M.K.&T. Sur.
S.D. 2,500 ft.
Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,600 ft. from S and 1,900 ft. from E. Sec. 4, G.C.&S.F. Sur.
Drlg. on iron at 2,040 ft.; 400 ft. oil in hole.

WARD COUNTY

Atlantic O. P. Co.'s No. 2 Miller, 504 ft. from NE and 330 ft. from SE, W. F. Russell No. 3 Sur.
Drlg. 2,370 ft.
Alexander's No. 1 Richter, 1,650 ft. from NW, 1,170 ft. from NE line of Sec. 27, Blk. 34, H.&T.C. Sur.
Setting csg.; T.D. 2,240 ft.
Bradford et al's No. 1 E. R. Allen, 660 ft. from NW line and 551 ft. from NE line, Sec. 11, Blk. 5, H.&T.C. Sur.
T.D. 1,520 ft.; shut down.
Caprito's No. 1 Hardage & Wilson, 2,310 ft. from NE and 990 ft. from SE, Sec. 11, Blk. 34, H.&T.C. Sur.
Material.
Eastland Oil Co.'s No. 1 C. D. Mason, 330 ft. from SW and SE, Sec. 14, Blk. 34.
Cellar.
Gulf Prod. Co.'s No. 58 O'Brien, 330 ft. from E and 1,650 ft. from S, Sec. 18, Blk. F.
Location.
Gulf Prod. Co.'s No. 56 O'Brien, 2,310 ft. from N and 330 ft. from E, Sec. 18, Blk. F.
T.D. 2,785 ft.; shot; testing.
Gulf Prod. Co.'s No. 57 O'Brien, 2,310 ft. from S and 330 ft. from E, Sec. 18, Blk. F.
Drlg. 1,349 ft.
Magnolia Pet. Co.'s No. 2 Sealy Estate, 2,310 ft. from S and 330 ft. from W, Sec. 43, Blk. F.
T.D. 1,810 ft.; set csg.
Rector Oil Co.'s No. 1 Monroe, 660 ft. from SE and NE, Sec. 2, Blk. 1, W.&N.W. Sur.
Drlg. 4,282 ft.
Sageland Oil Corp.'s No. 2 Pure-Bennett, 1,650 ft. from NW and 2,310 ft. from SW S.D. 220 ft.
Jerry Sines' No. 1 Brown, 330 ft. from NW and NE, Sec. 13, Blk. 5, H.&T.C. Sur.
Drlg. 2,980 ft.; 1,000 ft. oil in hole.
West Texas O. & R. Co.'s No. 1-C University, 330 ft. from N and E, Sec. 6, Blk. 16.
Drlg. 2,347 ft.

WINKLER COUNTY

Barnsdall Oil Co.'s No. 1 Brown & Altman, 2,310 ft. from S and E, Sec. 6, Blk. B-5.
Elev. 2,844 ft.; drlg. 380 ft.
Green Prod. Co.'s No. 1 J. F. Cross, 330 ft. from N and 2,310 ft. from W, Sec. 4, Blk. B-10, P.S.L. Sur.
Shut down.
Gulf Prod. Co.'s No. 1 Keystone Cattle Co., NE of NW, Sec. 10, Blk. B-3, P.S.L. Sur.
Location.
Gulf Prod. Co.'s No. 2 Keystone Cattle Co., NW cor. Sec. 17, Blk. B-2.
Location.
Harry Adams' No. 2 Scarborough, 990 ft. from N line and 990 ft. from W line, Sec. 2, Blk. 77, P.S.L. Sur.
Location.
Humble Oil & Ref. Co.'s No. 2-A Walton, 660 ft. from S and W, Sec. 48, Blk. 26.
Derrick.
Maxwell & Atlantic's No. 2 Daugherty, 990 ft. from S and 330 ft. from E, Sec. 11, Blk. 26, P.S.L. Sur.
Drlg. 2,727 ft.; 30,000,000 ft. gas at 2,690-98 ft.
J. C. Maxwell's No. 1 Brown & Altman, 2,310 ft. from N and 990 ft. from W, Sec. 6, Blk. B-5.
Elev. 2,844 ft.; drlg. 376 ft.
Mid-Continent Pet. Corp.'s No. 2 Howe, 1,650 ft. from N and 330 ft. from W, Sec. 12, Blk. 26.
T.D. 2,989 ft.; T.P. 2,800 ft.; C.O.
Richardson's No. 1 Walton, 1,010 ft. from S and 330 ft. from W, Sec. 1, Blk. B-3.
Drlg. 2,801 ft.
Skelly Oil Co.'s No. 2 Halley, 1,320 ft. from N and 2,200 ft. from E, Sec. 25, Blk. B-11, P.S.L. Sur.
S.D. 3,090 ft.
Sioux Oil Co.'s No. 1 Lowett, 330 ft. from N and E, Sec. 36, Blk. 26, P.S.L. Sur.
T.D. 2,595 ft.; fishing.
Sun Oil Co.'s No. 1 Halley, 2,200 ft. from N and 440 ft. from E, Sec. 24, Blk. B-12, P.S.L. Sur.
T.D. 2,695 ft.; 29,900,000 ft. gas; killing gas.
Texas Pacific Coal & Oil Co.'s No. 2 Daugherty, 1,650 ft. from S and 330 ft. from E, Sec. 2, Blk. 26, P.S.L. Survey.
Drlg. 2,742 ft.

YOKUM COUNTY

C. J. Davidson et al's No. 1 Bennett, 1,320 ft. from N and E, Sec. 678, John H. Gibson Sur.
Drlg. 155 ft.

East Central Texas Wildcats

(Continued from Page 74)

mile SE of Miller Bros. A. Caro Sur.
S.D. 2,950 ft.; making repairs.

HUNT COUNTY

Cauble & Thompson's No. 1 Reed, 330 ft. N of northerly NE cor. of C. B. Payne Sur., but in F. Thweatt Sur., 3 miles SE of Greenville.
S.D. 3,435 ft.; to test.
J. F. Morrissey & Co., Inc.'s No. 1 Fry, 543 ft. from N and 200 ft. from E of 146-ac. tract, 7 miles N of Commerce, C. Davis Sur.
Derrick.
H. G. Samson's No. 1 Phillips, 1,200 ft. E of Winan's No. 1 Phillips, University Lands Sur., 2 miles W of Commerce.
Elev. 522 ft.; S.D. 2,065 ft.

KAUFMAN COUNTY

Germany et al's No. 1 Clark, 951 ft. N and 1,000 ft. W of tract, S. Eden Sur.
Washing to botton; T.D. 1,780 ft.
Murry & Emerson's No. 1 G. W. Martin, 1,660 ft. from W and 250 ft. from N of 140-ac. tract, from W. L. C. Butler Sur., 2 miles NE of Kemp.
S.D. 27 ft.
L. P. Kean's No. 1 J. B. Hunter, R. Sowell Sur., 300 ft. from SW and 150 ft. from SE of 50-ac. tract, 4 miles S of Terrell.
S.D. 3,400 ft.

LEON COUNTY

Killough & Tucker's No. 1 G. W. Lee, center of NE 10 acres of 230-ac. tract, J. Burleson Sur.
Moving in rig.

LIMESTONE COUNTY

J. Edward Mills' No. 1 Hunt, 200 ft. from N, 350 ft. from W line 34.75-ac. tract, Israel Wood Sur., 3 miles NE of Kosse.
T.D. 3,637 ft.
C. F. Carter's No. 1 Dean, 660 ft. from SE and 330 ft. from SW lines of 75-ac. tract, P. Valella Sur., 3½ miles SW of Mexia.
T.D. 1,758 ft.
Doughtry et al's No. 1 S. Welch, 150 ft. from NW and 900 ft. from NE of 77.64-acre tract in A. Varilia Sur., 4 miles W of Groesbeck.
Top sand 2,940-51 ft.; coring 3,015 ft.

McLENNAN COUNTY

Mahan et al's No. 1 Mann, 1,100 ft. W of Simms Oil Co.'s No. 1 Mann, Carlos Tampo Sur., W of Robertsonville.
S.D. 700 ft.

NACOGDOCHES COUNTY

A. D. Boyd's No. 1 Mattaner, 400 ft. S and 1,000 ft. E of J. A. Cherino Sur., near Cherino.
Location.
Douglas Exploration Co.'s No. 1 Hayter, 1,687 ft. from S and 2,582 ft. from W lines of tract, Santos Coy Sur.
Drlg. 3,537 ft.
Morrow et al's No. 1 C. B. Watkins, 150 ft. from N line and 330 ft. from NW lines of 160-ac. tract, 3 miles S of Caro, H. Y. Bailey Sur.
S.D. 4,170 ft.

NAVARRO COUNTY

Bennett Brothers' No. 1 T. E. Stewart, 150 ft. from NE line of lease, 10 miles SW of Corsicana, Wm. R. Bowen Sur.
T.D. 1,186 ft.; S.D.
R. B. Codding et al's No. 1 Lela Kent, 450 ft. from S line and center of N and S lines of lease, 3 miles NE of Chatfield, C. B. Emmons Sur.
S.D. 1,340 ft.
W. J. Keeling et al's No. 1 J. F. Rushing 484 ft. from N line and 150 ft. from W line of 184-ac. tract, 6 miles SW of Richardson, Henry Ford Sur.
T.D. 2,881 ft.
McCullough et al's No. 1 C. Berry, 330 ft. from SE cor. of 35-acre tract, 1 mile W of Dawson, William Moss Sur.
S.D. 1,182 ft.
E. M. Thomason & Co.'s No. 1 C. Morgan, 340 ft. from W and 520 ft. from N of 100-ac. tract, Wm. Haggard Sur., 1 mile SW of McGlothlin's No. 1 Dobbin.
Rigged up.
Wiggins et al's No. 1 Donoho, 450 ft. from N and 1,101 ft. from E lines in John Couple Sur., SW of Corsicana.
S.D. 1,439 ft.

RED RIVER COUNTY

Dinger's No. 1 W. T. Norris, 1,000 ft. from S and 1,900 ft. from W of 400-ac. tract, Jos. Guest Sur., 1 mile S of Detroit.
S.D. 1,861 ft.
Joiner's No. 1 D. Rust, C. C. Wilborn Sur., 234 ft. N and 254 ft. W of most southerly SE cor. of Sur., just south of Avery.
Rig.

RUSK COUNTY

Ben Lamb's No. 1 H. Leath, 330 ft. out of NW cor. of 185-ac. tract in L. J. Dooley.
S.D. 4,725 ft.
Richardson's No. 1 Wood.
Derrick.

SMITH COUNTY

Cloud et al's No. 1 Dendall, 330 ft. from S and W of 55-ac. tract, J. Williams Sur., 3 miles E of Van Field.
S.D. 1,650 ft.
W. R. Harrison's No. 1 Rushing, J. Herring Sur. (O.W.O.D.)
T.D. 4,330 ft.; S.D.

TITUS COUNTY

S. Rotondi's No. 1 Lillianstun, 1,200 ft. E from NW cor. of J. Bodt Sur. and 330 ft. N, but in W. H. Crawford Sur., 5 miles NE of Talco.
Elev. 301 ft.; derrick.

UPSHUR COUNTY

T. D. Humphries' No. 1 C. Nations, Inc., SW cor. 3-ac. tract, R. Aher Sur., 1½ miles N of Ore City.
Rigged up.

VAN ZANDT COUNTY

Blackwell Oil Co.'s No. 1 J. F. Malone, 1,760 ft. from S and 330 ft. from E. J. Balch Sur., 2½ miles SE of Van.
Rigged up.
J. H. Foster et al's No. 1 Breucher, 330 ft. out of SE cor. of tract, D. Clapp Sur., 4 miles SE of Wills Point.
T.D. 3,140 ft.; rebuilding derrick.
J. Beren et al's No. 1 Bryant, 483 ft. N of same operator's dry hole, Nacogdoches County School Land Sur.
W.O.S.R. 1,325 ft.
Beren et al's No. 2 Palmer, 544 ft. from S and 686 ft. from E of 69.5-ac. tract, Nacogdoches County School Land.
T.D. 1,324 ft.
Peden & Olson's No. 5 Brannon, 150 ft. from N and W, Nacogdoches Co. School Lands.
Location.

Southwest Texas Wildcats

(Continued from Page 72)

T.D. 2,650 ft.; P.B. to 2,220 ft.; recmtd.
Magnolia Pet. Co.'s No. 1 Bennett, 330 ft. from S and W lines of Sur. 441.
Drlg. 1,900 ft.
J. J. O'Byrne's No. 1 Ball, 330 ft. from S and W lines of Tract 3, Santas Flores grant.
Rigging up.
Pearson et al's (Grimes et al) No. 1 Fitzsimmons, 300 ft. from S line, 150 ft. from E line of Sur. 291.
Abd. 4,552 ft.
Santa Clara Oil Co.'s No. 1 Wood-Welder, 330 ft. from NE cor. of NW¼ of Sur. 385.
1,000 ft.; no report.
Texia Oil Co.'s (Johnson Bros.) No. 1 Hubbard, 990 ft. out of SW cor. of Sur. 84.
Testing 2,799 ft.

FAYETTE COUNTY

Ross Fenton's No. 1 Kasper (263-ac), 3,000 ft. from NE line, 1,280 ft. from SW line, of Thos. Green Sur. No. 28.
Checking titles.

FRIO COUNTY

Amerada Pet. Corp.'s No. 4 Halff & Oppenheimer, 3,200 ft. from NW line, 990 ft. from NE line, John Gibson Sur.
Location.
Amerada Pet. Corp.'s No. 1 Smith, 4,552 ft. from NE line, 1,550 ft. from SE line of J. B. Mason Sur.
Moving in material.
W. T. Shoemaker's No. 1 M. Roche, 150 ft. SW cor. of Carl Wenzel Sur. No. 139.
Tested S.W. in Edwards; T.D. 3,700 ft.

GOLIAD COUNTY

Keystone Royalty Co.'s No. 1 M. Woods, SW part of county.
Moving in material.

GONZALES COUNTY

Southwestern Synd., Ltd.'s No. 1 W. S. Atkinson, 2,054 ft. from N line, 1,034 ft. from E line of 185-ac. tract in S. Y. Reams Sur. No. 51.
S.D. 5,700 ft.

GUADALUPE COUNTY

C. W. DeFreest's (Port Isabel O. & G. Co.) No. 1 Emil J. Leissner, 400 ft. from NW line, 150 ft. from SW line of 156-ac. tract, A. C. Davis Sur.
Drlg. 1,675 ft.
A. D. Locke's No. 1 Lowman, 210 ft. from SE and SW lines of 2,500-ac. tract in C. Campbell Sur.
T.D. 1,810 ft.; changing to rotary to whipstock 1,275 ft. to get post tools lost in hole.
Mineral Oil Corp. of Texas' No. 1 Allen Phillips, 162 ft. from N line, 900 ft. from E line of tract, Cortinos Sur.
Rigging up.
J. S. Suttle's No. 2 Baenziger, S of Seguin, Old well; R.U. to W.O.
Suttle et al's No. 1 Baenziger, 700 ft. from S line, 500 ft. from E line of 125-ac. tract, Monsola Sur.
C.O. 2,153 ft.; to treat with acid.
Seidemann et al's No. 2 Seidemann, 400 ft. from NW line, 360 ft. from NE line of 147.5-ac. tract, Esnaurrizer Sur.
T.D. 2,987 ft.; dropped from report.
L. E. Trout's No. 1 McKee, 650 ft. from W line, 150 ft. from N line of tract, Green DeWitt Sur.
Fishing 3,100 ft.

HIDALGO COUNTY

Downey & Morton's No. 1 Daskom, 450 ft. from E line, 55 ft. from S line of Blk. 34, Por. 45.
Cmtd. csg. 4,115 ft.; W.O.C.
E. H. East's No. 1 Carter, 330 ft. from E line, 900 ft. from N line of Blk. 19, East Retama Subd., Tule grant.
1,600 ft.; no report.
Lacy et al's No. 1 E. Flores, 75 ft. from N line, 106 ft. from E line, Tract 266, Porcion 38.
Spudded.
Nutex Oil Co.'s (Hankamer & Camp) No. 1 F. Rapp, 330 ft. from E line, 990 ft. from S line of 511-ac. tract, Laguna Seca Lge.
Abd. 5,379 ft.
E. L. Smith's No. 1 Flores, 330 ft. from N line, 1,803 ft. from E line of Tract 250, Porcion 39.
Drlg. 1,400 ft.

JIM HOGG COUNTY

French Oil Co.'s No. 2 T. T. East, 330 ft. from NE and NW lines, Blk. 74, Subd. No. 2 Las Moritas grant.
Moving in material.
Miller & Pippin's No. 1 Yeager, 527 ft. S line, 150 ft. E line of Blk. 6, Sur. 20.
Fishing 3,200 ft.
A. Edmiston's (Southwestern Dev. Synd.) (formerly John D. Norwood) No. 1 C. W. Hellen, 330 ft. N and W lines, NW¼ NW¼ Sur. 48.
S.D. 1,600 ft.
Sun Oil Co.'s No. 1 T. T. East, 18,600 ft. from N line, 3,350 ft. from W line of Santa Domingo de Arribo grant.
Drlg. 2,195 ft.

JIM WELLS COUNTY

A. M. Hagan's No. 1 Robert Adams, SW cor. Sec. 10, M. Ruiz Sur.
Moving in rig.
Joe Lundin's No. 1 T. C. Hewitt, 330 ft. SE cor. Sec. 51, McKinney & Williams Sur.
Drlg. 3,562 ft.
Maer & Shira's No. 1 Schaeffer, 1,320 ft. E of NW cor. center of Blk. 15, of subdivision of ranch.
T.D. 771 ft.; changing to a larger rig.

KARNES COUNTY

H. A. Pagenkopg's No. 1 T. J. McAda, 330 ft. from NE and NW lines of Tract C, Martinez Sur.
Drlg. shale and lime 4,700 ft.
R. G. Tonkin's No. 2 Henke, 1,650 ft. from S and E line of tract.
Location (making arrangements for derrick).

KERR COUNTY

Meteor Oil Co.'s (Edminton & Walker) No. 1 Whitworth, 1,160 ft. from S line and 1,333 ft. from E line of Sec. 1,439, of the H.E.W.T. Sur.
S.D. 950 ft.
Jeff Love and Eastland Oil Co.'s No. 5-E Jeff Love, 1,500 ft. SE of No. 1 and 1,530 ft. from SE cor. and 300 ft. from N line of Sec. 1,591.
Recmtng. 5,385 ft.

KLEBERG COUNTY

Parr & Ponder's No. 1 Sam Michalk et al, 5 miles SE Kingsville.
S.D. 1,050 ft.

LASALLE COUNTY

C. W. Benk's No. 1 Feliz, 1,300 ft. from S line, 300 ft. from W line of Sur. 47.
S.D. 1,815 ft.
S. H. Killingsworth's No. 1 Yeager, 100 ft. from W line, 300 ft. from N line, Sec. 94, Blk. 5, Lot 10.
Drlg. 2,150 ft.

LEE COUNTY

Jas. E. Pederson's No. 1 Turner, 1,860 ft. from N line, 150 ft. from E line of tract, David Hudson Sur.
T.D. 6,560 ft.; P.B. to 6,150 ft.; preparing to perforate csg.

LIVE OAK COUNTY

Baugh & McMillan's No. 1 Walton & Campbell, 1,500 ft. NE line and SE line of D. R. Fant Sur.
Drlg. 3,630 ft.
Henderson Coquat's No. 1 Central Co., 310 ft. from S and W lines, Sec. 12, Blk. 43, Simon Subd.
Abd. 1,762 ft.
Henderson Coquat's No. 1 Reagan, McGloin Sur., E of Nueces River and S of Oakville.
Spudded.
Henderson Coquat's (Luling O. & G. Co.) No. 1 Rex, 330 ft. from SE and SW lines of 629-ac. tract, C of SW¼ of G.H.&H. Sur., Abst. 197, 3 miles S of Mileska.
Drlg. 2,900 ft.
L. D. Ormsby's No. 2 Etta Terrell, 1,400 ft. from NW line, 200 ft. from NE line of tract, E. Jurdin Sur.
Abd. 1,520 ft.
J. O. Whittington's No. 1 Little, 1,320 ft. NE of S cor. of M. M. Shipp Sur., 330 ft. N of S line.
T.D. 5,758 ft.; pulling tubing and preparing to swab.

McMULLEN COUNTY

Henderson Coquat's No. 1 Ezzell, midway N and S lines, 2,000 ft. from SE line, D. R. Fant Sur.
Rigging up.
Inland Oil Co.'s No. 1 Lark, 150 ft. from N and W lines of 407-acre tract, Scrugham Sur.
Set csg. 978 ft.; drlg. plugs.
Brown & Nessly's No. 1 Dr. Worley, 9,930 ft. N of river along W line of O'Boyle Sur., 1,399 ft. E at R/A.
Drlg. below surface csg.
Chas. A. Hall's No. 1 B. C. Claunch, 368 ft. from N line, 160 ft. from E line of 25-ac. tract, Michael Haley Sur.
Location.
Howeth & Swiger's No. 1 Rhodes, near C 990 ft. from N and W lines of Sec. 22, M. F. Lowe Sur.
Drlg. 3,200 ft.
Texio Oil Co.'s No. 1 Ellen Atkinson, 330 ft. from S and W lines of 80-ac. tract, Martha J. Deen Sur., Sec. 13.
Rigging up.

MEDINA COUNTY

Dupre & West's No. 1 Mott, 100 ft. from

E line, 810 ft. from N line, J. Bell Sur. No. 1,478.
100 ft.; no report.
John Lind's No. 1 Jungman, 2,050 ft. from N line, 550 ft. from W line, J. Degat Sur.
Drlg. 1,790 ft.
W. T. Shoemaker's No. 1 Noonan, 52.5 ft. S 2 deg. 20 ft. E of old well, Sec. 349, M. Simon Sur.
T.D. 450 ft.; hole caving; to move in rotary.

NUECES COUNTY

Southern Minerals' No. 1-B Morgan, Roberts Sur.
Spudded.

REAL COUNTY

H. J. Heartwell et al's No. 2 L. J. Maby, 250 varas from NW line, 775 varas from SW line of A.B.&M. Sur. No. 175.
Drlg. gas sand 3,050 ft.; no report.

SAN PATRICIO COUNTY

Masterson et al's (Tom Graham) No. 1 Wurzbach, 330 ft. from W line, 4,350 ft. from S line of C. C. Hornsby Sur.
Standing 5,521 ft.

STARR COUNTY

Armstrong, Emmanuel & Adams' No. 1 S.C. C.C., 330 ft. from S and E lines of Blk. 57, Porcion 38-89.
Ready to gun perforate 2,740 ft.
C. R. Borah's No. 1 A. Guerra, San Jose grant, 330 ft. from N and 150 ft. from E lines of Sec. 6 (NE part of county).
Coring 3,035 ft.
John H. Clopton's No. 1 Dioncia Lopez de Tijerina, Blk. 4, Tract C-14, Porcion 80.
Standing 1,820 ft.
Crawford et al's No. 1 Hicks et al, 187 ft. from NW line, 318 ft. from NE line of Blk. 6, Pedernal grant.
S.D. 1,615 ft.
Heep Oil Co.'s No. 1-A Guerra, Blk. 35, 30 ft. S from No. 1, Porcion 55.
Drlg. 2,700 ft.
Hiram Reed's No. 1 Block Bros., Tract A-28, Porcion 80, Blk. 4.
Resumed drlg. 1,500 ft.
Dale Sneed's No. 1 Y. and V. Guerra, 330 ft. W line of Por. 68, 330 ft. S line of 1,000-ac. block of N end of Por. 92, in Por. 68.
Standing 330 ft.
Sunray Oil Co.'s No. 1 Lopez (Munoz), 2,600 ft. from N line, 880 ft. from E line, Porcion 75.
Drlg. 3,200 ft.
Sun Oil Co. and Humble's No. 1 Mantor & Briggs, NW¼ of NW¼ of Sur. 53.
Rigging up.

WEBB COUNTY

Payne et al's No. 1 Hoggterp, 450 ft. from SE line, 300 ft. from NE line, Blk. 6, Sur. 1,110, W of Oilton.
Coring 1,919 ft.; odor of oil at 1,900-19 ft.
Arthur H. Wray's No. 1 Geo. Stuempke, Share 1, Brewster pasture, Galan grant.
820 ft.; no report.

WILLACY COUNTY

W. T. Daniel's No. 2 Armendiaz, near Rio Hondo, 7,798 ft. from E and W lines of Share 14.
S.D. 4,000 ft.
Kingwood Oil Co.'s No. 1 Santa Rosa, Inc., 160 ft. from E line, 637 ft. from S line of Sec. 30, Blk. 16, Share 44, San Juan de Carricitas grant.
Drlg. 1,450 ft.

WILLIAMSON COUNTY

Gault & Mimms' No. 1 H. V. Seggren, 1,000 ft. from W line, 300 ft. from S line of 450-ac. tract, Bevil Sur. No. 56.
T.A. 913 ft.
Goff et al's No. 1 Timmerman, Cartwright Sur.
Abd. 1,146 ft.
Hays et al's No. 1 Pfluger, 150 ft. from E line, 150 ft. from S line, White Sur.
S.D. 915 ft.
J. Morgan Russell's No. 1 Nelson, 1,150 ft. S line, 1,115 ft. E line of John L. Justice Sur. No. 2.
Dry and abd. 894 ft.

ZAPATA COUNTY

F. H. Crow et al's No. 1 Daniel Yzaguirre, 330 ft. out of SW cor. Share 1, Porcion 14-15-16, D. Yzaguirre tract.
Location for 3,500-ft. test.
Danvers & Harrison's No. 1 D. A. McAskill, 660 ft. SE and SW lines, Blk. 51, Edwards Subd., Borrego grant.
Set and cmtd. csg. 20 ft.
Texas Royalty Investment Co.'s No. 1 N. J. Vela, 686 ft. from NE line, 300 ft. from NW line, Blk. 7, Por. 29.
Coring 2,304 ft.; odor of gas 2,269-2,304 ft.
E. L. Smith Oil Co.'s No. 1 R. Hinnant, NE cor. of Blk. 27, Sur. 307.
Moving in material.

Southwest Texas Proven

Week Ending May 4

CAESAR—BEE COUNTY

Caesar Oil Co.'s No. 3 R. E. Miller, 1,900 ft. from W line, 330 ft. from S line of F. Lewis Sur.
Had gas blowout at 1,100 ft.; no report.
Caesar Oil Co.'s No. 5 R. E. Miller, 150 ft. from S and E lines of lease, F. Lewis Sur.
2,700 ft.; no report.
Firm Oil Co's No. 2 Grissom, 1,750 ft. from W line, 150 ft. from N line, McEarly Sur.
Abd. 3,060 ft.
McAllister Fuel Co.'s No. 1 W. J. Vaughn, 150 ft. from S and W lines of 53.7 acres, Franklin Lewis Sur.
Set surface csg. 3,036 ft.
J. G. Puterbaugh, SW cor. of tract, F. Lewis Sur.
Set csg. 3,036 ft.
El Toro Oil Co.'s No. 1 J. J. Grisson, 150 ft. from N and W lines of 10-ac. tract, P. B. Early Sur.
Spudded.
Tothen Oil Co.'s No. 1 Hudman, 150 ft. from N and E lines of lease in Chas. Baker Sur.
T.D. 3,117 ft.; to perforate at 3,075-90 ft.

DIRKS—BEE COUNTY

Dirks Bros.' (Conservative Oil Co.) No. 1 Harris, 330 ft. S of N line, 330 ft. W of E line of 30-ac. tract, J. L. Dugat Sur.
Derrick.
Dirks Bros. and Wrightsman's No. 2 Roth, 662.8 ft. N of No. 1, 330 ft. from N and W lines of N½ of SW¼ of Sec. 7, J. M. Uranga grant.
Drlg. 1,900 ft.

RAY POOL—BEE COUNTY

Leslie McKay, trustee's No. 1 Phil L. Campbell, 700 ft. from N line, 150 ft. from E line of W. B. Blanchard Sur.
Set csg. 3,934 ft.

TULETA—BEE COUNTY

Mills Bennett Prod. Co.'s No. 1-B C. W. Bassinger, 256 ft. from W line, 330 ft. from S line of SE¼ of NW¼ of Sec. 7, Ragley Subd., Uranga grant.
Derrick.
Interallied Oil Co.'s No. 1 Nix, center of Blk. 6 of W½ of Sec. 20.
T.D. 4,001 ft.; I.P. 30 bbls. per day with gas.
Edwin M. Jones' No. 3 Rapp, 660 ft. due N of No. 7 Robinson, Sec. 5.
Tested sand 3,903-33 ft.; showed 300 ft. of oil; 250 lbs. pressure in 10 minutes; set csg.
Edwin M. Jones' No. 1 Unsicker, 330 ft. from S and E lines of Sec. 6.
Coring 3,950 ft.
Heyser Heard & Walton's No. 2 Perez, C of Blk. 16, of SW¼ of Sec. 8.
T.D. 4,060 ft.; P.B. 3,908 ft.
Mills Bennett Prod. Co.'s No. 1 Basinger, 330 ft. from N and W lines of NE¼ of NW¼ of Sec. 7, J. M. Uranga grant.
T.D. 3,853 ft.; comp. but not gauged.
Southwest Exploration Co.'s No. 1 Heyden & Bruckhan, C of farm tract, 330 ft. from N and W lines of Sec. 20, Uranga grant.
Rigging up.
Stanolind O. & G. Co.'s No. 1 Walton, 330 ft. from W line, 6,111 ft. from N line, Blk. 21, Ragley Subd., J. M. Uranga grant.
Set surface csg. 500 ft.
Wrightsman Oil Co.'s (Home Oil Co.) No. 1 Bassinger, 330 ft. from N and E lines of NW¼ of Sec. 7, Ragley Subd., Chittum-Miller ranch, J. M. Uranga grant.
Set surface csg.
Wrightsman Oil Co.'s No. 1 Kimball, 1,200 ft. from NW line, 1,500 ft. from NE line, S. Winship Sur.
Standing 1,800 ft.

VON ORMY—BEXAR COUNTY

N. G. Carter's No. 1 F. Bilhartz, 150 ft. from N and E lines of lease, F. Rolen Sur. No. 48.
Standing 650 ft.; (corrected).
Tawalter & Umburn's No. 2 Wentz, 150 ft. from S line, 700 ft. from E line of tract in John Simpson Sur.
T.D. 720 ft.; I.P. 10 bbls. per day.

GOVERNMENT WELLS POOL—DUVAL COUNTY

Bridwell Oil Co.'s No. 2 J. D. Southerland, 660 ft. due N of No. 1, 330 ft. from E line of Sec. 122, H.E.&W.T. Sur.
Drlg. 2,200 ft.
Central Producers' No. 4 Wendt, 990 ft. from E line, 330 ft. from N line, Sur. 43.
Rigging up.
Govt. Wells Oil Corp.'s No. 17 State, 330 ft. from S and E lines of NW¼ of NE¼ of Sur. 48.
Testing sand 2,263-92 ft.
Hamill-Smith & DeLange's No. 1 Hubbard, 330 ft. from S and W lines of Sur. 77.
Drlg. below surface csg.
Magnolia Pet. Co.'s No. 8-C Hahl, 990 ft. from E line, 330 ft. N of S½ of Sur. 61.
W.O.C. 42 ft.
Magnolia Pet. Co.'s No. 8 M. Ruiz, 1,036 ft. from SE line, 330 ft. from SW line of Sur. 574.
Testing 2,441 ft.
Magnolia Pet. Co.'s No. 42 D.C.R.C., 600 ft. N of No. 34, 2,312.7 ft. from N line, 330 ft. from E line, Sec. 208, J. Poitevent Sur.
Set surface csg. 40 ft.
Magnolia Pet. Co.'s No. 14 J. O. Wilson, 660 ft. S. of No. 9, 330 ft. from W line of Sec. 134, G.B.&C.N.G. Sur.
Abd. 2,366 ft.
Parr Oil Corp.'s No. 1 R. E. Glover, 330 ft. from S and W lines of SE¼ of SE¼ of Sec. 44, J. Poitevent Sur.
Drlg. 1,900 ft.
Parr Oil Co.'s No. 2 R. E. Glover, 330 ft. from N and W lines of SE¼ of SE¼ of Sec. 44, J. Peitevent Sur.
Location.
Parr Oil Corp.'s No. 3 R. E. Glover, 330 ft. from N and E lines of SE¼ of SE¼ of Sec. 44, J. Poitevent Sur.
Location.
Parr Oil Co.'s No. 3 Heller, 330 ft. from NE line of E½ of SW¼ of Sur. 44.
T.D. 2,335 ft.; I.P. 55 bbls. on pump.
Reynosa Oil Co.'s No. 9-C D.C.R.C., 300 ft. from E line, 400 ft. from N line of SE¼ of Sur. 363.
Drlg. 2,000 ft.
Russ Pet. Co.'s No. 1 Hahl, 330 ft. from N and E lines of SW¼ SE¼ Sur. 64.
Abd. 2,525 ft.
Sun Oil Co.'s No. 7 Cuellar Motor Co., 701 ft. E of No. 3, 330 ft. from S line of Sec. 576, B.S.&F. Sur.
Location.
Sun Oil Co.'s No. 8 Cuellar Motor Co., 701 ft. E of No. 7, 330 ft. from S line of Sec. 576, B.S.&F. Sur.
Location.
Texas Co.'s No. 8 B.D.C.C., 330 ft. from W line, 990 ft. from S line, Sur. 135.
W.O.C. 2,339 ft.

HOFFMAN—DUVAL COUNTY

Conway & Butscher's No. 2 Hoffman, 330 ft. S, 325 ft. E of SW cor. of Sur. 120 in Sur. No. 114
Drlg. 3,000 ft.

LOMA NOVA—DUVAL COUNTY

Al Buchanan and Blanco Oil Co.'s No. 2 J. O. Trevino (Ruiz), 330 ft. from S line, 660 ft. due W of No. 1, Sec. 73, J. Poitevent Sur.
T.D. 2,706 ft.; comp.; not gauged.
Al Buchanan and Blanco Oil Co.'s No. 3 J. O. Trevino (Ruiz), 660 ft. due N of No. 1, 330 ft. from E line, Sec. 73, J. Poitevent Sur.
Cored sand 2,682-93 ft.; setting csg.
Humble O. & R. Co.'s No. 4 G. Ruiz Est., 330 ft. from W line, 1,497 ft. from S line, Sec. 553, B.S.&F. Sur.
Reaming to make test, 2,775 ft.
Humble O. & R. Co.'s No. 1-C Jas. F. Welder, 330 ft. from S and W lines of Sec. 73, Stone, Kyle & Kyle Sur.
Drlg. 1,050 ft.

NORTH KOHLER—DUVAL COUNTY

G. G. Mortiner's No. 2-B Peters, 2,310 ft. from W line, 330 ft. from N line of SW¼ of Sur. 196.
Coring 2,600 ft.; sand at 2,549-61 ft.; tested S.W.

DARST CREEK—GUADALUPE COUNTY

Grayburg Oil Co.'s No. 14 McKean, 700 ft. from No. 13, Cottle Sur.
Standing 1,854 ft.
Grayburg Oil Co.'s No. 15 McKean, 200 ft. from NE line, 150 ft. from SE line, H. Cottle Sur.
Spudding.

LUCAS—LIVE OAK COUNTY

Houston Oil Co.'s No. 32 Cartwright, 1,124 ft. N of No. 31, Trudo Sur.
Coring shale 5,170 ft.
Lion Oil Ref. Co.'s No. 5 P. E. McNeill, 330 ft. from NW line, 1,350 ft. from SE line of G.H.&H. Sur. in Jane Curry Sur., Blk. 9, Location.
Lion Oil Ref. Co.'s No. 7 McNeil.
Set surface csg.

SAM FORDYCE—HIDALGO COUNTY

Cortes Oil Co.'s No. 1-B Smith, 133 ft. from N line, 164 ft. from W line of S 99 acres of Tract B-3, Porcion 41.
C.O. 2,790 ft.
Barnett et al's (Roy Johnson) No. 1 Missouri Pacific Ry., S edge of right of way, 500 ft. from W line of Porcion 41.
C.O. 2,756 ft.
W. F. Lacy's No. 1 V. R. deFlores, 75 ft. from N line, 107 ft. from E and W lines, Blk. 266, Porcion 38.
Spudded.
Jack Porter's No. 1 C. E. Smith, 150 ft. from N line, 165 ft. from E line of S½ of Tract 278, Porcion 40.
Drlg. 600 ft.
Reed et al's No. 2 Smith, 133 ft. from N line, 165 ft. from E line of S 10 acres of B-3, Porcion 41.
Dry and abd. 2,794 ft.
Rogers Oil & Gas Co.'s No. 4 Guerra, SE 25-ac. tract, 500 ft. from N line, 494 ft. from W line, Tract 254, Por. 40, Share 6.
W.O.C. 2,761 ft.
Showers & Moncrief, Inc.'s No. 2 C. E. Smith, 230 ft. from N line, 164.2 ft. from E line of Share 3-B, Porcion 41.
Spudded.
Skelly Oil Co.'s No. 1-A Seabury, 198 ft. from E line, 230 ft. from S line of 12-ac. tract, Tract 256, Porcion 38.
Location.
Skelly Oil Co.'s No. 2 Seabury, 230 ft. from S and W lines of 24- ac. tract, Tract 256, Porcion 38.
T.D. 2,808 ft.; comp.; no gauge; 100 lbs. csg. pressure; 300 lbs. tubing pressure.
Smith & Dayvault's No. 1 Seabury, 100 ft. from N line, 150 ft. from E line of 22.90-ac. tract, Tract 256, Porcion 38.
T.D. 2,915 ft.; perforated at 2,844-56 ft.; tested oil and S.W.; P.B. to 2,790 ft.
Waite's (Scheafer & Mundy) No. 1 Tobasco, Ind. Dist., 25 ft. from N line, 210 ft. from E line of Tract 260, Porcion 38.
T.D. 2,770 ft.; I.P. 75 bbls. per day.

SANDIA—JIM WELLS COUNTY

Magnolia Pet. Co.'s No. 6 Seeligson, 660 ft. W, 330 ft. S of No. 3, Canales Sur. No. 20.
4,500 ft.; gas sand 4,400 ft.; no report.
O. W. Killam's No. 5 W. D. Wade ranch, 1,285 ft. from S line, 1,640 ft. from E line, 1,250 ft. SE of No. 4, in 1,000-ac. tract, Blk. D, Lopez de Jean grant.
Standing 4,201 ft.

BURNEL—KARNES COUNTY

American Liberty Oil Co.'s No. 1 C. H. Waltmuller, 330 ft. from SE and SW lines of 207-ac. tract, Jas. Johnson Sur.
Coring for sand.
Luling O. & G. Co.'s No. 1 W. C. Boyce, 150 ft. from NW cor. of tract, J. Johnson Sur.
Drlg. 900 ft.

KINGSVILLE—KLEBERG COUNTY

Ray Clark's No. 1 House, Lot 5, Blk. 37, K.T.&I. Co. Sur.
S.D. 1,000 ft.
Fidelity Exploration Synd.'s No. 1 Vivian Kivlin, Sec. 4, Blk. 39, K.T.&I. Sur. on Vivian Kivlin lease.
Derrick up.

JACOB POOL—McMULLEN COUNTY

Loma Oil Co.'s No. 37-A Leonard Jacob Corp., 150 ft. from E line, 330 ft. due N of No. 23-A, W. H. Jacob Sur. No. 8.
Location.
Loma Oil Co.'s No. 2-W L. Jacob Corp., 220 ft. from E line, 1,320 ft. due N of No. 1-W, W. D. Benham Sur.
Location.
Motes & Beddingfield's No. 4 Jacobs (Lark), 418 ft. from S and W lines of lease, Scrugham Sur.
T.D. 1,004 ft.; I.P. 50 bbls. per day.
Motes & Beddingfield's No. 6 Lark, 304 ft. S of No. 3, Scrugham Sur.
T.D. 1,002 ft.; I.P. 50 bbls. per day.

SINTON—SAN PATRICIO COUNTY

Conroe Drlg. Co.'s (Heep) No. 1-C R. H. Welder, 466 ft. from S and W lines of 100-ac. tract, Juan Francisco Encornacion & Felipe R. Portilla grant.
Bldg. derrick.

LOS OLMOS—STARR COUNTY

Ed Linberg's No. 6 Bass, 1,350 ft. from W line, 150 ft. from N line of S½ of NW¼ of Share 6, Porcion 75-76-77.
245 ft.; no report.

BARBACOAS—STARR COUNTY

R. G. Hall's No. 1 Doyno et al, 150 ft. from N line near center of Blk. C-31, Tract 21, Porcion 41.
Coring 1,375 ft.

PLACETAS—STARR COUNTY

Hughston Oil Co., Inc.'s No. 1 Ben D. Wood, 701.6 ft. from S line, 162 ft. from W line of 1,000-ac. tract, Porcion 84.
Drlg. 500 ft.

SAXET—NUECES COUNTY

Benedum & Trees' No. 1 Stillwell, 330 ft. from W line, 629 ft. from N line, Blk. 31.
Drlg. 1,500 ft.
J. K. Cutton's No. 3 Sagarin, 330 ft. from S and E lines of tract, Form Lot No. 1, C.E.P.I.&M. Sur.
Coring 4,955 ft.
Houston Oil Co.'s No. 3 Morgan, 990 ft. from E line of lease, 330 ft. from N line of lease, Sec. 7, Range 5.
Location.
Magnolia Pet. Co.'s No. 2 W. W. Walton, 330 ft. from E line, 289 ft. from S line of 92.11-ac. tract, Enrique Villareal Sur.
Location.
Texon Oil & Royalty Co.'s No. 1 Buckholts (Kocurek), 600 ft. from S line, 695 ft. from N line of J. Ward Sur.
T.D. 4,888 ft.; I.P. 100 bbls. per day; 50 lbs. tubing pressure; 450 lbs. csg. pressure.

KIMBRO—TRAVIS COUNTY

J. M. Hickey's No. 1 Altick Lind, 150 ft. from S line, 320 ft. from E line of 41.05-ac. tract in McHenry Windburn Sur.
Cored Serpentine from 820-1,194 ft.; showing gas, but no oil yet.

BRUNI-WEBB COUNTY

Associated Oil Co.'s No. 3 A. M. Bruni, 660 ft. N of No. 2, 330 ft. from W line, 4,000-ac. tract, Blk. 7, M. Arispe grant.
Location.
Associated Oil Co.'s No. 4 A. M. Bruni, 330 ft. from NW line, 660 ft. SW of No. 3, Blk. 7, M. Arispe grant.
Location.
American Liberty Oil Co.'s No. 2-C A. M. Bruni Est., 266.81 ft. from E line, 404.15 from S line of Unit 2, Sec. 7, M. Arispe grant.
Drlg. 1,050 ft.
Highland Oil Co.'s No. 7 Bruni, 990 ft. from NW line, 330 ft. from NE line, Sur. 7.
T.D. 3,403 ft.; I.P. 10 bbls. per hr.; ¼-in. choke.
Highland Oil Co.'s No. 10 A. M. Bruni, 940 ft. NE of No. 2, 506 ft. SE of No. 4, 202.4-ac. tract, M. Arispe grant.
Location.
Highland Oil Co.'s No. 12 A. M. Bruni Estate, 520 ft. E of No. 6, 330 ft. from S line of 200-ac. tract, M. Arispe grant.
Location.
O. W. Killam's No. 32 Bruni, 260 ft. from SE line, 418 ft. from NE line of Blk. 28, Sur. 8.
Abd. 3,449 ft.
O. W. Killam's No. 35 Bruni, 915 ft. from SW line, 330 ft. from SE line, Sur. 6.
T.D. 3,407 ft.; I.P. 10 bbls. per hr.
Peerless & Seeligson's No. 3 Bruni, 330 ft. SE line, 250 ft. SW line, Sur. 6.
Set csg.; W.O.C. 3,412 ft.
Tide Water Oil Co.'s No. 4 Bruni, 1,650 ft. from SW line, 330 ft. from NW line of 500-ac. tract, Sur. 7.
Set surface csg.

LAUREL—WEBB COUNTY

South Texas Oil Co.'s No. 1 Laurel Bros., 100 ft. from E line, 200 ft. from S line of Sec. 269, Blk. 2, C.C.S.D.&R.G.N.G. Sur.
Fishing.
J. Elmer Thomas' No. 5 Gates, 990 ft. N and E lines, Sur. 22.
Location.

WEST COLE POOL—WEBB COUNTY

Ross Barnhart's No. 1 de la Garza, 1,500 ft. from N line, 200 ft. from E line of Sur. 262.
T.D. 2,406 ft.; fishing 1,600 ft.
Carolina Texas O. & G. Trust, Inc.'s No. 11 S. Benavides, 150 ft. from S line, 600 ft. from W line, Blk. 12, Sur. 683.
Set csg. on sand showing oil, 4,993 ft.; W.O.C.
Cole Pet. Co.'s No. 92 Benavides, 330 ft. from N and E of E cor. of Callaghan Tract on Sur. 6.
T.D. 3,398 ft.; P.B. 2,240-53 ft.; I.P. 16,000,000 ft. of gas; 550 lbs. rock pressure.
French Oil Corp.'s No. 2-B Benavides, 150 ft. S and W lines of SE¼ of SE¼ of Sur. 661.
Set csg.; W.O.C. 2,346 ft.
Magnolia Pet. Co.'s No. 1 G. Benavides, Blk. 255, Hale Subd., Arispe grant.
Drlg. 1,200 ft.
Tide Water Oil Co.'s No. 3 Bruni, 990 ft. from SW line, 330 ft. from NW line of 500-ac. tract, Sur. 7.
T.D. 3,395 ft.; I.P. 30 bbls. per hr.

NOACK—WILLIAMSON COUNTY

Coffield & Lanning's No. 3 Heap, 200 ft. from N line, 225 ft. from W line of tract in White Sur.
Location.
R. R. Ogden's No. 1 Matteck, 150 ft. N and W lines of 108.5-ac. tract in White Sur.
Location.
Taylor Ref. Co.'s No. 3-B Sladek, 1,500 ft. N of creek, 300 ft. from W of No. 1-B, White Sur.
T.D. 890 ft.; I.P. 5 bbls. per day.

ESCOBAS—ZAPATA COUNTY

Kleiner & Hill's No. 11 Guttierez, 600 ft. from NE line, 2,087 ft. from NW line, Fansler Subd., Sur. 4, Comitas grant.
T.D. 1,248 ft.; I.P. 10 bbls. per day.

JENNINGS—ZAPATA COUNTY

Texas Co.'s No. 67 Jennings, 800 ft. NW of No. 66, in 15,941-ac. tract, Cerrito Blanco grant.
Set surface csg.; W.O.C. 2,106 ft.

drill stem
SAFETY
VALVES

Carried on the bottom of the Kelly Joint, the T-I-W Drill Stem Safety Valve serves as a blowout preventer to close the inside of the drilling string, removing all strain from and eliminating all danger of cutting out swivel, rotary hose and other connections. Valve has the same O. D. as a tool joint or pipe coupling, and is amply strong to stand hard drilling. Wherever a blowout preventer is used, a T-I-W Drill Stem Safety Valve should be used. Illustrated descriptive pamphlet on request.

TEXAS
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BAKER OIL TOOLS, INC.

Among Gulf Coast Drilling Contractors

C. & C. Drilling Co. has cemented surface casing for Gem Oil Co.'s No. 3 Watt, in the Livingston Field, Polk County, after completing the same company's No. 7 Davis and Holmes.

Rutherford Drilling Co. has one rig running for E. J. Nicklos in the Tomball Field, Harris County.

Jordan Drilling Co. has abandoned No. 1 Long Leaf Lumber Co. in the Kittrell Field, Houston County, which was drilled for Boone Brothers and Woodley Petroleum Co.

Alamo Drilling Co. is nearing the deep pay in the Dickinson Field, Galveston County, on the Joe Piazza lease, for Turnbull and Irwin.

George Echols is drilling below 4,890 feet on an interesting wildcat test in Bee County for Felmont Oil Co. He is also rigged up and ready to spud on the Mantor and Briggs lease in Starr County for the Sun Oil Co., and is drilling below 3,080 feet on a test for the same company in Jim Hogg County. On his own No. 1 Nichols, in the Manvel Field, Brazoria County, he has cemented casing in 21 feet of Miocene sand after a drill stem test from 3,996-4,013 feet, indicated good possibilities. This property which is being drilled under the name of the Commonwealth Oil Co. has been sold to the Erskine Oil Co. of Oklahoma City, which has planned an immediate drilling program for the rest of the leases.

W. V. (Bill) Bowles has started another well for the Texas Co. in the Manvel Field, Brazoria County, being No. 8-A Belcher. He will probably announce location for a third test on his leases in the north end of the field within the near future.

Charles B. Gholson has rigged up and is drilling below 1,100 feet on his wildcat test located in the Joseph Lindley Survey, Montgomery County, which will be drilled to the Cockfield sand.

DeArman Brothers Drilling Co. is rigged up for a test at the Blue Ridge Field in Fort Bend County, on a test for Anderson and Kerr located in Lot No. 5 of the Robinson and Duff Subdivision.

Edwards Drilling Co. is moving in a rig for No. 1 Thistlewaite Lumber Co., a wildcat test in St. Landry Parish, Louisiana, that is being drilled for C. B. Bunte and Woodley Petroleum Co. It has also a rig up for another deep wildcat test in East Baton Rouge Parish for Superior Oil Producing Co. and one rig running for the Moran Co. in the Conroe Field.

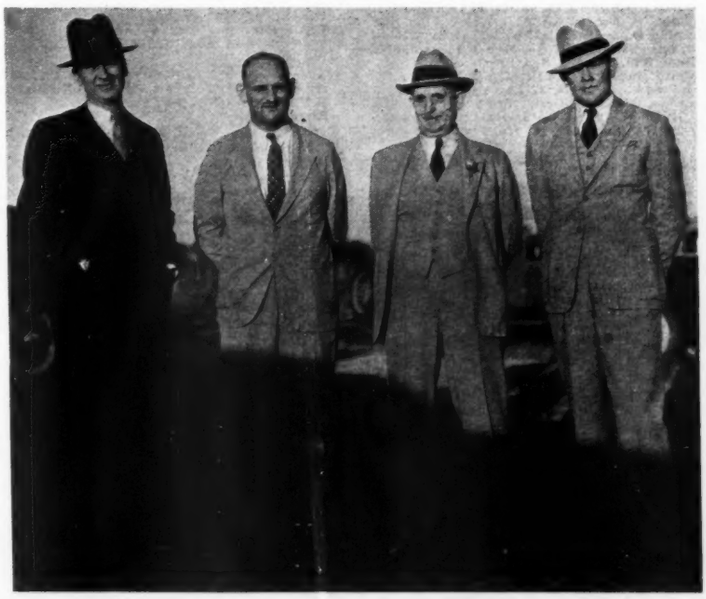
Cron and Gracey have seven rigs running, one for the Shell Petroleum Corp. in the White Castle Field, Louisiana; one rig for the same company in the Roanoke Field, Louisiana, and two for the same company in the Iowa Field in Louisiana; one for the Texas Co. in the Manvel Field, one in the Port Lavaca Field for the same company and one at Hobbs, New Mexico, for the Repollo Oil Co.

J. E. (Jeff) Hooper is moving in a rig for a wildcat test on the Ogburn Prospect in Harris County.

Smith and McDannald have two rigs running in the Louise Field, Wharton County, for the Pure Oil Co.; four rigs running in the Boscoe Field, Louisiana, for the Superior Oil Producing Co.; one rig in the Roanoke Field, Louisiana, for the Shell Petroleum Corp., and one rig in the Cayuga Field, in Anderson County, for the Tide Water and Texas Seaboard Oil companies.

Glenn H. McCarthy, Inc., has cored the oil sand and set oil string at 5,023 feet on No. 1 McCarthy on the J. T. Bertrand 80-acre lease in the Conroe Field.

Jeff Hopper has contract to drill a 6,500-foot wildcat test for H. B. Hebert and J. J. Still on the Alfred Backen tract, J. H. Hackett subdivision, in the John C. Ogburn Survey, Harris County. This test is near the town of Cypress.



Probably the most camera-shy group of men in the Gulf Coast were coralled and photoed at the recent official opening party given by the Mission Manufacturing Co. of Houston. They are, left to right, Rex G. Hamaker, vice president and sales manager, Reed Roller Bit Co., Houston, Texas; W. V. Vietti, chief petroleum engineer South Texas District for Texas Co. at Houston, W. Claud Smith, drilling contractor and W. P. (Bill) Taylor, field superintendent for W. Claud Smith

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Oil Showing in Deepest Producing Horizon on the Gulf Coast in Louisiana Wildcat Test

By F. L. SINGLETON
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., May 6.—The favorable showing of a deep wildcat test in Coastal Louisiana from the deepest producing horizon yet uncovered on the Gulf Coast, together with the development of the first commercial production on the Lake Hermitage prospect in Plaquemines Parish, Louisiana, and the apparent extension to the Port Lavaca Field in Calhoun County were the featured developments on the Gulf Coast the past week.

Texas Co.'s No. 1 Bayou St. Dennis, located in the central part of Jefferson Parish, Louisiana, in Section 19-17s-24e, reported last week as coring oil sand below 9,500 feet, was cored to 9,572 feet, the total depth, and indicated production possibilities on one of the best drill stem tests ever to be made on a deep test, when the operators recovered 2,500 feet of oil on a 15-minute test from 9,558-72 feet, through a one-quarter inch choke. Although no gas pressure was indicated on the gauges, the pressure was strong enough to clean the hole, which was filled with water when the well was washed. Seven-inch casing is being cemented at 9,558 feet, and a production test will probably be made the latter part of the week.

It encountered its first deep showing in sandy shale from 9,531-33 feet and topped the sand showing oil at 9,535 feet, which was cored at intervals to the total depth. Considerable attention was first shown in the test when it cored sand showing oil and gas from a much shallower level than its present depth, and many are of the opinion that the well could have been completed for a producer below 5,100 feet, as several showings of oil and gas were encountered from 5,094-07, 5,107-14, 5,114-27, 5,127-37, 5,647-51 and 6,876-81 feet. On a drill stem test made from 8,070-90 feet, it showed 20 thribbles of oil and 24 thribbles of salt water through a one-quarter inch choke, with the pressure building up to approximately 25 pounds.

The deepest production to be developed in Coastal Louisiana is found in the Bosco Field, Acadia and St. Landry Parishes, where Superior Oil Producing Co. has several wells producing below 8,700 feet, while the deepest production for the Gulf Coast as well as the state of Texas is found at the Dickinson Field in Galveston County which was established just two weeks ago, by Humble Oil & Refining Co., when it completed its No. 1 Danielson for an initial production of 746 bbls. per day from a total depth of 9,140 feet.

Since the discovery of the Bosco Field in Acadia and St. Landry Parishes, the Roanoke Field in Jefferson Davis Parish, the Dickinson Field in Galveston County and several other fields producing below 8,000 feet that are scattered along the Coast, deeper drilling in this district has been increasing constantly, consequently the completion of Texas Co.'s No. 1 Bayou St. Dennis for an oil well from a new producing depth will be most interesting to operators on the Gulf Coast, and will add considerably to the importance of deeper exploration.

Lake Hermitage

The Lake Hermitage prospect in Plaquemines Parish, Louisiana, received its first commercial production by the completion of Humble Oil & Refining Co.'s No. 3 LaFourche Levee Basin, located in northeast corner of Section 11-18s-25e. It topped the oil sand at 3,161 feet, and with 7-inch casing cemented 3,156 feet, was completed at a total depth of 3,190 feet flowing an estimated 16 bbls. of oil per hour through a one-quarter inch choke, with tubing pressure 350 pounds and shut in casing pressure 425 pounds. Gravity of the oil is 32.1.

While a number of sulphur tests have been drilled on the prospect, only three have been drilled for oil. The first test drilled by the Gulf Refining Co., about a year ago indicated possibilities of production, by the completion of its No. 1 Lafourche Levee district. It was drilled to a total depth of 4,595 feet, was plugged back to 4,515 feet and completed for 30 bbls. of oil per day. Production, however, soon declined and it is now dead. The second test was drilled by Humble Oil & Refining Co. on its No. 2 LaFourche Levee district that was abandoned the first part of the year at 4,141 feet, after being plugged back from 6,472 feet.

Production is from the Miocene sand that was apparently missed in the Gulf test. It is located on a large block of acreage, and the development of the prospect will do doubt be moderate.

Port Lavaca

The extent of the producing area of the Port Lavaca Field in northern Calhoun County will probably be definitely known during the week, as five tests located in various directions from discovery are in, or nearing the sand found in the discovery. The first of four tests being drilled by the Texas Co. to indicate production was registered at the company's No. 1 H. C. Wehmeyer, located approximately 1½ miles southwest from production. It was drilled to a total depth of 6,333 feet and after making an electrical coring, that indicated good possibilities at 6,255 feet it was plugged back to 6,261 feet, and on a drill stem test, it flowed oil for about 3 minutes through the drill stem, after 14 stands of pipe had been pulled. Late in the week, the operators were preparing to make another test. One mile northwest of the discovery the company's No. 1 Duelberg in the M. Sanches Survey is reaming at 6,256 feet. It is reported that a sand showing oil and gas was cored from 6,236-46 feet, which is the approximate depth from which the discovery well is producing. Two miles south in the Samuel Shupe Survey the company is preparing to core at 6,168 feet on No. 1 Blardone. This is the approximate top of the gas sand found in Steen Drilling Co.'s No. 1 Stanzel, the first test to be drilled in the field, and which was completed for a distillate producer. Approximately 5 miles southwest of the discovery in the Florentin Garcia League, the company's No. 1 J. A. Martin is drilling in hard lime below 5,617 feet and should be coring for the pay within the next few days. Halliburton Oil Producing Co.'s No. 1 Burton, located 660 feet due east of the discovery, is drilling in shale below 5,460 feet. The Crown Central Petroleum Corp. has made four locations to be drilled on its Willet Wilson 26.7-acre lease in the A. Esparza Survey, the first of which will probably be spudded by the middle of the month. The lease adjoins on the west the F. Stanzel tract on which the discovery well was drilled by Steen Drilling Co. Steinberger Petroleum Co.'s No. 1 Shofner, the first well to be completed for a producer, is producing around 163 bbls. per day on an 11/164-inch choke with tubing pressure 1,650 pounds and casing pressure 2,000 pounds.

Anahuac

The Anahuac Field, northern Chambers, discovered the past month, received its second producer at the close of the week, when Humble Oil & Refining Co. completed its No. 1 J. J. Clark, a west offset to the discovery, for an initial production of 31 bbls. per hour., through a one-quarter inch choke with tubing pressure 1,060 pounds and casing pressure 1,200 pounds. It is producing from the Frio sand at a total depth of 7,117 feet, which is 29 feet lower than the discovery. It topped the sand at 7,034 feet, the Discorbis at 5,964, Heterostegina at 6,324 and the Marginulina at 6,660 feet. Offsetting the discovery on the south, the company's No. 1 Broussard, in Section 63, H.&T.C. Survey, is bottomed in oil sand at 7,100 feet, and the operators are running 7-inch casing preparatory to testing. Location has been made for the company's No. 3 Middleton in Section 58, H.&T.C. Survey. It is 2,332 feet north of the south line and 2,732 feet east of the west line of the section. Approximately 8 miles northwest, in the Luke Brian Survey, South Gulf Oil Co. has spudded its wildcat test located on the J. T. White Survey.

Dickinson Area

The fifth deep producer for the Dickinson Field, Galveston County, was recorded by the completion of Humble Oil & Refining Co.'s No. 3-A Maco Stewart for one of the best wells to be completed in the deep pay. It was originally drilled to a depth of 8,146 feet, but was plugged back to 8,060 feet, where it was completed for an initial production of 34 bbls. per hour, through a one-quarter inch choke, with tubing pressure 1,700 pounds and casing pressure 2,100 pounds. It is located about 1,400 feet due east of the company's No. 1-B Maco Stewart, a producer in the John Sellers Survey. It topped the Discorbis 6,535 feet, Heterostegina at 6,777 feet, the Marginulina at 7,020 and the Frio at 7,975 feet. Four other tests are active in the field, but are not deep enough to be of much interest at this time.

What is considered by many to be one of the most attractive wildcat prospects, and which is causing more interest than any other prospect to be drilled on the Gulf Coast for some time, is Johnston & Johnston's No. 1 fee located in the South Houston district, in the H.&T.B. Survey No. 5. Late in the week it was coring below 4,970 feet in shale. Although no definite information is available on the test, it is reported a gas showing was encountered from 4,953-57 feet and that the Discorbis was topped at 4,525 feet. Royalty around the test is now reported to be selling as high as $850 per acre base, with leases being offered at $1,000 per acre. While it had been rumored that the Stanolind Oil & Gas Co. was interested in the test, it was not before this week that this rumor was verified when the leases held by Johnston & Johnston were transferred to the Stanolind Oil & Gas Co. The leases transferred represent-

Wildcat Operations on Gulf Coast

Week Ending May 4

RACCOON BEND—AUSTIN COUNTY

Humble O. & R. Co.'s No. 4 Reese, 150 ft. SW of most easterly NE line, 410 ft. NW of SE line, Wm. Smeathers Sur.
T.D. 4,140 ft.; washing.

Humble O. & R. Co.'s No. 8-X Diemar, 1,458 ft. from NW line, 357 ft. from SW line of Wm. Harvey Sur.
T.D. 4,185 ft.; P.B. 3,543 ft.; prepare to pump.

Humble O. & R. Co.'s No. 7-X Ollie Wilson, 933 ft. SE from No. 6-X, 250 ft. from NE line, Wm. Harvey Sur.
Cmtd. csg.; T.D. 4,182 ft.; P.B. 2,940 ft.; drilled to 3,140 ft.; 7-in. csg. 3,097 ft.

Humble O. & R. Co.'s No. 14-X Woodley, 354 ft. W from No. 8, 418 ft. from easterly NE line, 375 ft. from most easterly N cor. of lease.
T.D. 4,152 ft.; 7-in. csg. 4,115 ft.; prepare to install gas lift.

DANBURY—BRAZORIA COUNTY

Shell Pet. Corp.'s No. 3 Haury, 800 ft. SE of No. 2 in line with No. 2 and No. 1 Blakely-Winston, H.&T.B. Sur. No. 13.
Abd. 5,974 ft.

DAMON MOUND—BRAZORIA COUNTY

Robert J. Cummins' No. 1 R. T. Mukahy heirs, 300 ft. SW line and 300 ft. from SE line of 100-ac. lease, A. Darst Creek Sur.
Drlg. shale 810 ft.

Intercoastal Oil Co.'s No. 13 Wisdom, 150 ft. from NW line and 10 ft. from SW line of Lot "D", Blk. No. 51.
Spudded.

HASTINGS—BRAZORIA COUNTY

Stanolind O. & G. Co.'s No. 1 Williams, 466 ft. N, 1,126 ft. from most easterly SW cor. of 81.3-ac. lease, A.C.H.&B. Sur. No. 1, 20-in. at 25 ft.; drlg. plug.

Stanolind O. & G. Co.'s No. 1 Grote, 460 ft. N and W of SE cor. of 71-ac. lease, A.C. H.&B. Sur.
Drlg. shale 2,115 ft.

Stanolind O. & G. Co.'s No. 1 Sneed, 495 ft. E along S line of Miller lease from SW cor. and 466 ft. S at R/A, A.C.H.&B. Sur. No. 2.
Drlg. shale 4,231 ft.

Stanolind O. & G. Co.'s No. 2 Sneed, 491.5 ft. E, and 1,590 ft. S from NW cor. of Gilbert Sneed 225-ac. lease, A.C.H.&B. Sur. No. 2.
Drlg. sandy shale 2,365 ft.

Stanolind O. & G. Co.'s No. 2, J. W. Surface, 375 ft. S and 466 ft. W from easterly NE cor. of 75.9-ac. lease, A.C.H.&B. Sur. No. 2.
P.B. to 1,100 ft.

MANVEL—BRAZORIA COUNTY

Jay Simmons' No. 1 Stitt, located in center of W 5 acres of Lot No. 28, H.T.&B. Sur. No. 23.
Drlg. sandy shale 3,752 ft.

Harrison & Abercrombie's No. 1 Stevens et al, Center of W 5 acres, E of No. 4, A.C.H. &B. Sur. No. 91.
Drlg. shale and lime 1,795 ft.

Commonwealth Oil Co.'s No. 1 Nichols, 150 ft. out of E cor. of Lot No. 2, H. N. Little Sur.
Top oil sand 4,002 ft.; T.D. 4,062 ft.; 7-in. 3,990 ft.

Texas Co.'s No. 2 Gulf Coast Home Co., 347 ft. S, 441 ft. W from NE cor. of Lot 88, H.T.&B. Sur. No. 2-B.
Rigging up.

J. W. Sorrells' No. 1 Swift, Blk. 21, Abst. 318, H. N. Little Sur.
Derrick.

Texas Co.'s No. 10 Houston Oil Field Assn., 419.5 ft. S, 47 deg., 59 ft. E and 263 ft. N 42 deg., 1 ft. E of W cor. of Lot No. 7, A.C.H.&B. Sur.
Derrick.

Texas Co.'s No. 8-A Belcher, 330 ft. S, 47 deg. 59 ft. E and 265 ft. S 41 deg. 40 ft. W of NE cor. of lease, H. N. Little Sur. 10-in. csg. 1,119 ft.; drlg. sand and boulders 1,932 ft.

Texas Co.'s No. 2 C. P. Dawson, 247.5 ft. S, 449.9 ft. W of NE cor. Lot No. 58, H. T.&B. Sur. No. 23.
Drlg. sandy shale and lime 1,879 ft.

Texas Co.'s No. 14-B Belcher, 660 ft. S 42 deg. W from No. 9-B Belcher, H. N. Little Sur.
Location.

Texas Co.'s No. 1 O. W. Halligan, center of Lot 27, H.T.&B. Sur. No. 23.
Location.

Texas Co.'s No. 1 O. W. Halligan, center of Lot 26, H.T.&B. Sur. No. 23.
Location.

Texas Co.'s No. 3 O. L. Rash, 920 ft. S, 48 deg. E and 330 ft. S, 42 deg. W from N cor. of Lot No. 22, T. Spraggin Sur.
Location.

Texas Co.'s No. 2-A H. J. Wray, 330 ft. from N line and 990 ft. W of E line of lease.
Drlg. shale and lime 4,946 ft.

Texas Co.'s No. 4 A.R.G.G.H., 442 ft. W and 247.5 ft. S of NE cor. Lot 36, H.T.&B.
Drlg. sand and shale 4,373 ft.

Texas Co.'s No. 11-A Belcher, 990 ft. W and 330 ft. N of SE cor. of H. N. Little Sur. 7-in. csg. 5,655 ft.; T.D. 5,675 ft.; drlg. plug.

Texas Co.'s No. 1 C. P. Dawson, 2,475 ft. S.

(Continued on Page 106)

ed approximately 4,200 acres. It is reported that Stanolind Oil & Gas Co. has asked the Railroad Commission for rules regulating the drilling of wells in this area. This request was probably asked due to the fact that a large majority of the acreage in the vicinity is divided into small town lots.

Batson Dome

Two tests on the south flank of the Batson Dome, Hardin County have reached the prospective pay levels and are not waiting on cement to set, preparatory to testing. John Deering and others' No. 3 Hooks, east offset to their No. 3 Cruse, a producer in the W. Donoho Survey, is bottomed in sand and shale showing oil at 5,642 feet. Seven-inch casing was cemented at 5,575 feet. Sterling Oil & Refining Co.'s No. 1 (Doucette) topped the sand at 5,684 feet and has cemented 7-inch casing at 5,678 feet. Total depth is 5,678 feet.

In the Bosco Field, Acadia and St. Landry Parishes, Louisiana, four tests have reached the deep pay and are preparing to test after cementing casing. In the extreme south end of the field, Oswego Oil Co. (Standard Oil Co. of Kansas) No. 2 Mouton in Section 34, is bottomed in oil sand at 8,606 feet, with 7-inch casing cemented at 8,575 feet. Superior Oil Producing Co.'s No. 2 C. B. Hernandez Section 34 is bottomed in oil sand at 8,585 feet, with 7-inch casing cemented at 8,558 feet. No. 3 C. B. Hernadez is bottomed in the same sand at 8,575 feet and is preparing to drill plug after casing had been cemented at 8,555 feet. The company's No. 2 Prejan in Section 34, has apparently made a short south extension to the field by coring oil sand to 8,570 feet, the total depth and has cemented 7-inch casing at 8,547 feet.

Shell Petroleum Corp.'s No. 3 Kratzer in the Roanoke Field, Jefferson Davis Parish, has apparently failed to open a shallow sand for the field, due to it making considerable salt water when tested at a screen setting from 7,584-97 feet, the total depth. The test is reported to have shown promise of becoming a producer when first tested, as it made some oil. The operators are still testing the well in attempt to determine the source of the salt water before a resetting of the screen is made. If the test had made a producer it would have opened the fifth producing horizon for the field. Other wells are producing from 7,800, 7,900, 8,664 and 8,700 feet.

Central Ohio Busiest in Central West; Four Completions in Kentucky Field

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, May 6. — The most active area of the Central West is the Central Ohio area. In Wood County, H. Kinzey abandoned Nos. 1, 2, 3, 4, 5, 6, and 7 on the John F. Gibson farm, Section 27, Montgomery Township, and F. D. Korner abandoned Nos. 1 and 2 on the Korner heirs farm, Section 11, same township. In Auglaize County, William C. Sowell is drilling No. 2 John F. Miller farm, Section 15, American Township, and has a rig for No. 1 on the Simon O. Cook farm, Section 11, same township. Duncan Smith is drilling on the C. E. Bowesox farm, Section 17, Jackson Township, Van Wert County, and Petro Producing Corp. is drilling No. 2 on the C. S. and Vesta Lemoyne farm, Section 35, Butler Township, Darke County.

In Sandusky County, Walter & Ervin abandoned Nos. 2, 3, 4 and 5, Sarah Roarick farm, Section 30, and Nos. 1, 3, 4, 5, and 6, on the Rebecca Fought farm, same section. In Seneca County, R. B. McKinney and others abandoned No. 8 on the County Infirmary grounds, Section 5, Eden Township, and No. 2 on the Henry Bell farm, Section 32, Clinton Township.

In Wyandot County, Upper Sandusky Oil & Gas Co. has a rig for No. 6 on the N. and H. Saltzman farm, Section 28, same township, and a rig for Newcomer and others on the Myrtle Williams farm, Section 33, same township. In Salem Township, H. Bosse Brothers and others are drilling No. 1 E. E. Kear farm, Section 16. Murphy and others have a rig for No. 3 on the R. and R. Criswell farm, Section 17, Tymochtee Township.

In Allen County, L. J. Pease and L. J. Pease, trustee, is drilling No. 6 on the Nancy E. Leedy farm, Section 14, Bath Township.

CENTRAL OHIO

In Holmes County, Monroe Township, Lydic Oil & Gas Co. has a rig for No. 2 on the Gladys McDowell farm, Section 26. In Mechanic Township, Lloyd S. Finley's No. 1 Lloyd S. Finley farm, Section 23, is dry at 888 feet.

In Lorain County, R. E. Gain's No. 1 Isabel Gain farm, Lot 86, Russia Township, is a gas well at 1,015 feet. In Wayne County, Ohio Salt Co.'s No. 1 fee land, Section 12, Chippewa Township, is shut down at 3,125 feet.

In Summitt County, Lyons and others are drilling No. 2 on the A. H. Cummings farm, Section 6, Green Township. In Greenfield Township, City Natural Gas Works' No. 1 Daniel Steiger farm, Section 1, is a gas well at 2,040 feet. Same company has a rig for No. 2 on the F. A. Ruff farm, Section 31, Rush Creek Township.

In Tuscarawas County, John Marks' test on the John A. Hart farm, in Section 22, Oxford Township, is a gas well at 1,191 feet. Michael Hardwick is drilling No. 2 on the Larsen B. Zimmerly farm, Section 21, Perry Township. James Upham's No. 1, on the Alfred C. Uhlers farm, Section 4, Fairfield Township, is down to 4,200 feet, and Staturs Development Co.'s No. 1, on the Fairfield Brick Co.'s No. 1, Section 4, same township, is shut down at 4,780 feet. In Goshen Township, Columbia Carbon Co.'s No. 1, in Lots 36-43, is shut down around 1,600 feet.

In Crawford County, Byron Crum is drilling No. 1 on the Byron Crum, Section 34, Auburn Township.

In Stark County, East Ohio Gas Co. is drilling No. 1 Angeline Halter farm, Section 19, Plain Township. Robinson & Arn are drilling No. 1 H. G. Mellinger farm, Section 9, same township. East Ohio Gas Co. has a well soon to start on the Nelson Stambaugh farm, Section 4, same township. East Ohio Gas Co. is drilling No. 1 J. C. Mayer farm, Section 16, same township. In Perry Township, White & Lyons are fishing at 4,000 feet on the Hattie Leaman farm, Section 26.

In Coshocton County, Preston Oil Co. is drilling No. 1-1,572 on the William Frazee farm, in the third-quarter, Newcastle Township, No. 2-1,574, same farm, and No. 4-1,575, and No. 5 on the Robert Giffen farm, same township. In Virginia Township, E. J. Edman's No. 1 Charles McCoy farm, is a gas well at 890 feet.

KENTUCKY

Four completions were reported from the Kentucky Field. In the Oak Pool, Ohio County, Cumberland Petroleum Co.'s No. 7 on the Guy Richards farm was dry, as was its No. 21 on the Rolla Richards farm, Oak Pool.

In the Fordsville Pool, Doctor Denton drilled a gas well on his lot, and J. C. Miller & Co. drilled in a 15-bbl. well on the Martha Webster farm, same pool.

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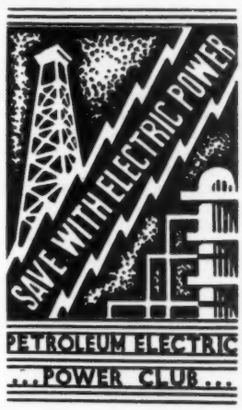

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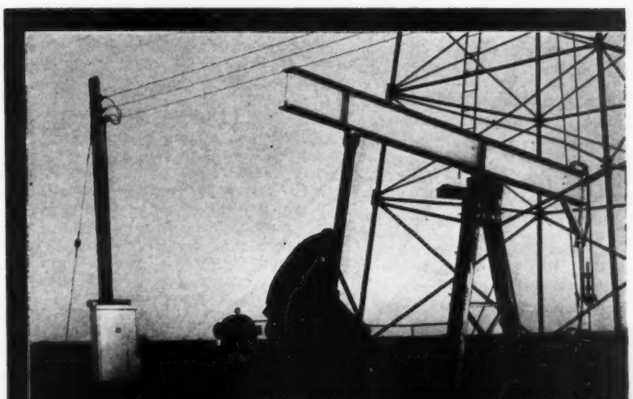

Universal Consolidated Test Making 2,000 Bbls. Proves Up Extension of Montebello Field

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., May 6.—The Montebello Field of Los Angeles Basin, an enigma for the past year owing to the inability of operators to strike the deep Cruz zone found by the Universal Consolidated Oil Co. in No. 1 Cruz, came into the clear this week when that company completed its No. 2 Nutt flowing 2,099 bbls. of 36.8 gravity oil and 1,100,000 feet of gas daily from 5,503 feet.

The No. 1 Cruz, located in the extreme eastern end of the field and several hundred feet beyond the nearest production, was brought in flowing 1,000 bbls. daily from 7,010 feet early in August, 1933. The initial production showed a rather high water cut, however, and as a result the company went back into the hole. The well was recemented and finished a few weeks later flowing 900 bbls. from the same depth. It is still producing a small quantity of oil on the beam. It appears probable that No. 2 Nutt is producing from a new zone, judging from the difference in depth, unless faulting is responsible for a major displacement. The 8⅝-inch water string was landed and cemented in this outpost at 5,425 feet, and accordingly the well is producing from 78 feet of oil sand.

Completion of this new producer climaxes a long and arduous struggle to find the elusive sand and it was accomplished only after the Universal had drilled three unsuccessful holes and other operators had drilled a series of deep dry holes on three sides of the original well which focused the attention of operators on this section of the field. No. 1 Cruz, the discovery well, has failed to hold up to expectations and will not pay out even a fair share of the cost of drilling.

Field a Perplexing Problem

Officials of the Universal Consolidated Oil Co. were perplexed after the series of dry holes drilled around No. 1 Cruz, its outpost, but they realized that one cannot laugh off a 1,000-bbl. well located out beyond the limits of upper-zone production. The failure of No. 1 Cruz to hold up was also disquieting and until this week some operators considered the temporary flush production of this well as just another of those cases where operators pick up a stringer of oil sand from the main field and are subsequently unable to develop sustained production. This opinion seemed tenable except for the fact that other operators were unable to develop commercial production at a higher position structurally in the older section of the field. Officials of the Universal Consolidated were sold on the fact that they had found something of importance despite the pessimistic views of operators in general and decided that if the zone did not extend north, south or west the accumulation must be to the east. Working on this assumption, the company acquired additional acreage and proceeded to prosecute further exploration work.

Completion of No. 2 Nutt justifies the judgment of Universal Consolidated's executives and that of C. E. Olmsted, president and general manager of the Texas Co. of California, which contributed dry hole money. The outcome of No. 2 Nutt has a direct bearing on adjoining leases of Texas. In addition to this, Texas consummated a deal with H. T. Coffin for an additional 130 acres and has already started work on its first test. This well is located about 2,000 feet east of No. 2 Nutt of the Universal Consolidated. Another half a mile east, the Woodward Oil Co. has erected a wooden rig and should begin actual drilling operations soon.

H. T. Coffin tied up 1,660 acres in this extension of the Montebello Field about two years ago and still retains about 1,260 acres. The Wilshire Oil Co. has concluded negotiations for 80 acres and it is probable that other pending deals may be concluded.

Shipments Lower

Shipments of crude and refined oil from California to foreign and domestic ports during 1935 to date are running approximately 20 per cent below liftings during the same period last year. The only reason the aggregate decline is not greater is that the large decrease in intercoastal shipments to Atlantic and Gulf Coast ports for domestic consumption has been offset to some extent by an increase of about 1 per cent in shipments to foreign ports. Intercoastal shipments during the present year are approximately 5,000,000 bbls. below those of the same period last year owing primarily to decreased liftings of fuel oil. Not a barrel of fuel oil has moved in the intercoastal trade this year whereas over 5,000,000 bbls. were shipped to the East Coast for domestic consumption during the first four months of 1934. With the exception of fuel oil, shipments to the East Coast for domestic consumption have been running close to similar movements during the same period last year.

Export movement of crude oil to foreign ports has shown an increase of approximately 50 per cent and shipments of other oils to foreign ports for the first four months of 1935 are on about a par with last year. The variation shown in offshore shipments of California crude and refined oil is of special significance because of the fact that crude oil produced on Bahrein Island is being sold in Japan in competition with California crude. Up to the present time 350,000 bbls. of crude from Bahrein Island has been moved to Japan and this movement will become of still more importance because this foreign production, while not as advantageously located geographically, is free of restraints imposed by petroleum codes and other hindrances.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	April 21		April 14			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Fuel oil	.....	.....	.....	.....	.....	4,980,981
Diesel and gas oil	.....	.....	.....	.....	527,098	781,119
Gasoline	330,818	47,260	116,894	16,699	2,034,163	1,721,031
Kerosene	44,859	6,408	.....	.....	513,280	427,386
Other finished oil	.....	.....	.....	.....	.....	15,171
Foreign exports:						
Crude oil	95,929	13,706	230,736	32,962	3,293,973	2,273,899
Fuel oil	8,541	1,220	84,620	12,089	3,571,118	3,782,070
Diesel and gas oil	82,811	11,830	91,741	13,106	1,119,985	1,327,107
Gasoline	.....	.....	253,426	36,204	1,488,900	1,213,151
Kerosene	.....	.....	59,875	8,554	331,731	454,815
Other finished oil	.....	.....	.....	.....	.....	3,529
Other unfinished oil	7,493	1,070	3,648	521	53,205	127,271
Coastwise-domestic:						
Crude oil	145,363	20,766	.....	.....	1,570,015	3,249,465
Fuel oil	108,868	15,553	75,046	10,721	2,462,070	3,657,387
Diesel and gas oil	35,377	5,054	.....	.....	247,244	250,431
Gasoline	288,318	41,188	122,724	17,532	2,288,094	3,519,598
Kerosene	2,963	423	.....	.....	37,561	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	157,258	448,113
Gasoline	.....	.....	.....	.....	.....	72,625
Kerosene	.....	.....	.....	.....	149,715	197,498
Asphalt	.....	.....	.....	.....	71,325	.....
Lubricants	.....	.....	.....	.....	12,381	18,331
Foreign exports:						
Crude oil	.....	.....	.....	.....	550,129	593,567
Fuel oil	85,029	12,147	41,780	5,826	527,054	332,102
Diesel and gas oil	8,972	1,282	.....	.....	351,784	580,136
Gasoline	1,992	285	.....	.....	782,360	1,157,875
Kerosene	2,385	341	.....	.....	216,283	232,220
Lubricants	23,842	3,406	.....	.....	74,411	58,458
Other finished oil	.....	.....	.....	.....	.....	2,760
Other unfinished oil	.....	.....	.....	.....	.....	5,750
Coastwise-domestic:						
Fuel oil	314,296	44,899	292,106	41,729	1,754,537	1,119,825
Diesel and gas oil	.....	.....	.....	.....	79,662	87,029
Gasoline	125,203	17,886	112,409	16,058	1,259,233	1,250,947
Kerosene	7,966	1,137	.....	.....	18,109	44,690

Exploration

The Standard Oil Co. of California has exclusive drilling and production rights on 100,000 acres on the island of Bahrein in the Persian Gulf and all crude oil moved from this point to Japan has been done for its account. This company's tanker, W. S. Rheem, was dispatched to Bahrein Island late last year and has been in this trade since that time. During 1934 the Standard Oil Co. produced 285,071 bbls. of crude oil from its holdings on Bahrein Island, but this does not represent the true potentiality of the field as most of this was produced late in the year. The company has completed 14 producing wells on the island and their production has been curtailed to conform with demand requirements. In order to load out this Bahrein Island crude, the Standard Oil Co. constructed several steel loading tanks and installed a submarine loading line last August.

The company has an exclusive concession covering 165,000 square miles in Saudi Arabia which has been receiving a thorough going over during the past year by Standard Oil Co. geologists. This normally might be considered another wildcat play, but reports indicate that the productive possibilities of the company's properties in Arabia look even better than Bahrein Island. One large structure has been mapped out in close proximity to the Persian Gulf and exploration work will be undertaken in the near future.

California Legislation

The California legislature, in addition to devising new ways of increasing taxes, will soon consider the so-called chain store bill. The assembly revenue and taxation committee, by a vote of 12 to 2, has given a favorable recommendation to Assembly Bill 2365 which imposes an annual tax of $500 on all multiple unit businesses operating 10 or more stores. This is only one of several similar bills introduced this year although some are only to be applied against service stations. Senate Bill 336 is general in character and exempts banks and public utilities but does not go any further. The tax under this bill is at the rate of $100 for each store up to 12, after which the tax is $1,200 each. Senate Bill 337 is also on a graduated scale, but fixes the maximum at $500 for each store over 19. Senate Bill 648 provides for a graduated scale and a tax of $1,000 for each store over 10 in number. Senate Bill 729 imposes a tax of $250 for each store over 20. It remains to be seen which of these bills will be passed.

In addition to these measures, Senator Swing has introduced a bill that proposes to increase the registration fee on motor vehicles and to impose a license tax on vehicles of over three tons with rates graduated according to the size of the vehicle and payable on the basis of mileage or in advance on a flat annual rate.

There are schedules of rates applying to motor vehicles propelled by taxable

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Macrate, A. M., No. 1 Athens, Los Angeles Co.	18- 3-13	6,462	pump 120 b.d.
Republic Pet., No. 1 Lawndale, Los Angeles Co.	18- 3-14	5,004	suspended
Associated Oil Co., No. 3 Inglewood Deep, Los Angeles Co.	7- 2-14	2,820	cmtd. 2,398
Standard Oil Co., No. 4 Inglewood Deep, Los Angeles Co.	17- 2-14	4,090	P.B. 3,619
Standard Oil Co., No. 5 Inglewood Deep, Los Angeles Co.	17- 2-14	6,284	suspended
Standard Oil Co., No. 6 Inglewood Deep, Los Angeles Co.	8- 2-14	1,376	sd. sh. drlg.
Ohio Oil Co., No. 17 Del Rey, Los Angeles Co.	28- 2-15	391	sd. sh. drlg.
Bel-Mar Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	3,162	sd. sh. drlg.
Harper & Williams, No. 1 Del Rey, Los Angeles Co.	27- 2-15	751	cmtd.
Stockburger, Roy, No. 1 Del Rey, Los Angeles Co.	27- 2-15	5,092	sd. sh. drlg.
Fourl, C. W., No. 3 Del Rey, Los Angeles Co.	27- 2-15	6,545	flow 3,600 b.d.
Ritelube Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,820	sd. sh. drlg.
Mathews Pet. Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	5,460	redrlg. 1,993
Birch Royer Oil Co., No. 1 Del Rey, Los Angeles Co.	34- 2-15	4,673	sd. sh. drlg.
Lor-Mar Oil Co., No. 1 Rel Rey, Los Angeles Co.	27- 2-15	6,701	O.S. cmtd.
Joyce Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	5,081	sd. sh. drlg.
Union Oil Co., No. 8 Del Rey, Los Angeles Co.	27- 2-15	3,872	190 b.d.
Union Oil Co., No. 10 Del Rey, Los Angeles Co.	27- 2-15	6,044	sd. sh. drlg.
Union Oil Co., No. 11 Del Rey, Los Angeles Co.	27- 2-15	750	cmtd.
Big Ben Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,752	redrlg. 5,981
Doyle Pet. Co., No. 1 Manhattan, Los Angeles Co.	30- 2-14	6,800	O. S. reptd.
Western Gulf, No. 1 Bandini, Los Angeles Co.	16- 2-12	1,091	sd. sh. drlg.
Vanco Dev. Co., No. 1 Artesia, Los Angeles Co.	25- 3-12	2,930	sd. sh. drlg.
Monarch Oil Corp., No. 1 Topango, Los Angeles Co.	5- 1-16	.....	rig suspended
Universal Consd., No. 2 Montebello, Los Angeles Co.	5- 2-11	5,503	flow 2,000 b.d.
Texas Co., No. 1 Montebello, Los Angeles Co.	5- 2-11	146	sd. sh. drlg.
Woodward Oil Co., No. 1 Montebello, Los Angeles Co.	4- 2-11	....	rigging up
Frontier Oil Co., No. 1 Pico, Los Angeles Co.	7- 2-11	3,361	sd. sh. drlg.
Shively, N. O., No. 1 Puente Hills, Los Angeles Co.	23- 2-10	3,190	wet—idle
Pressel & Tull, No. 1 Puente Hills, Los Angeles Co.	30- 2-9	4,300	hd. sd. drlg.
International Dev. Co., No. 1 Saugus, Los Angeles Co.	34- 5-14	4,335	will P.B.
Platt & Collins, No. 1 Costa Mesa, Orange Co.	14- 6-10	2,560	reaming
Wilshire Oil Co., No. 1 Newport, Orange Co.	29- 6-10	429	sd. sh. drlg.
Bartholomae Oil Co., No. 2 East Coyote, Orange Co.	22- 3-10	3,626	cmtd. 3,219
Great American Pet. Co., No. 2 East Coyote, Orange Co.	22- 3-10	3,500	hd. sd. drlg.
Stephens, J. T., No. 1 Chula Vista, San Diego Co.	27-18-2	1,451	hd. sd. drlg.
Great American Pet. Co., No. 4 Chino, San Bernardino Co.	7- 2-8	480	sd. sh. drlg.

fuel, trailers drawn by a motor vehicle and all other motor vehicles or trailers. Other measures introduced include provision to force the use of safety glass in all new cars sold in California after July 31; proposal to make all pipe lines public utilities and to increase gasoline tax one-half cent per gallon. It appears probable that the legislature will impose a tax on Diesel oil and butane gas where used in the place of gasoline. Users are escaping the tax which operators of the highways are expected to pay.

Kettleman Hills

The Kettleman North Dome Association is not losing any time in starting work on the several outposts recently authorized and it is likely that within another week or 10 days one or two of these tests will be making hole. Out in Section 24-21-16, Kenda is building rig for No. 54-24-H which will be drilled 330 feet north and 330 feet east of the center of the section. This outpost, located in the Huffman area, is just inside the original blue line established back in 1930 and should prove of primary importance owing to deep drilling by the Union Oil Co. on the Lillis-Welsh property west of this location.

Down in the Ochsner area, Kenda is rigging up No. 54-26-Q preparatory to an early spud. This outpost is just outside of the inner or red line as set in 1930 and will be 330 feet north and 330 feet east of the center of the section. No work has been done yet on No. 8-18-J in Section 18-21-17, or on No. 47-18-J in the same section, but one or both of these should be started in the near future.

In the Ochsner area the Standard Oil Co. is building a new rig preparatory to starting work on No. 21-19-J, in Section 19-21-17. Between the Felix area and the Ochsner area the Standard has

(Continued on Page 104)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Shell Oil Co., No. 4 Capitan, Santa Barbara Co.	5- 4-30	2,875	prod. test
General Petroleum, No. 14 Capitan, Santa Barbara Co.	32- 5-30	671	sd. sh. drlg.
Freeman, M. J., No. 1 Purisima, Santa Barbara Co.	11- 7-33	....	rigged up
Casmite Co., No. 1 Casmalia, Santa Barbara Co.	13- 9-35	1,551	sd. sh. drlg.
Scully & Snyder, No. 1 Naples, Santa Barbara Co.	7- 4-29	6,220	reaming
Barnsdall-Rio Grande, No. 10-88 Elwood, S. Barbara Co.	tideland	3,540	cleaning out
Barnsdall-Rio Grande, No. 2 Elwood, Santa Barbara Co.	15- 4-29	4,961	sd. sh. drlg.
Signal Oil & Gas Co., No. 4 Elwood, Santa Barbara Co.	tideland	....	rigging up
Shell Oil Co., No. 1 Goleta, Santa Barbara Co.	20- 4-28	6,508	gas well—idle
West Elwood Oil Co., No. 1 Goleta, Santa Barbara Co.	9- 4-28	3,715	cmtd. 3,600
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 4-20	8,116	fishing
Calco Pet. Co., No. 1 Las Posas, Ventura Co.	17- 3-20	....	rigging up
Union Oil Co., No. 1 Bardsdale, Ventura Co.	12- 3-20	725	sd. sh. drlg.
Goldray Oil Co., No. 1 Rincon, Ventura Co.	20- 4-24	....	rig suspended
Oil Ridge Oil Co., No. 1 Ventura, Ventura Co.	1- 4-19	1,620	hd. sd. drlg.
El Rancho Oil Co., No. 1 South Mountain, Ventura Co.	9- 3-19	852	sd. sh. drlg.
Texas Co., No. 128 South Mountain, Ventura Co.	4- 3-19	6,420	sd. sh. drlg.
Paloma Oil Co., No. 1 Sussana, Ventura Co.	12- 2-18	998	hd. sd. drlg.
Boisa Chica Oil Co., No. 2 Piru, Ventura Co.	4- 4-18	2,375	br. sh. drlg.
Continental Oil Co., No. 1 Ojai, Ventura Co.	12- 4-23	2,241	P.B. 1,546
High Mesa Oil Co., No. 1 Ojai, Ventura Co.	16- 4-22	176	suspended
Prop. Service Corp., No. 1 Lloyd, Ventura Co.	24- 3-23	7,232	reaming
Continental Oil Co., No. 4 San Miguelito, Ventura Co.	23- 3-24	2,543	sd. sh. drlg.
Standard Oil Co., No. 1 Lost Hills, Kern Co.	2-26-20	3,328	fish. D.P.
Continental Oil Co., No. 1 McDonald, Kern Co.	7-28-20	3,091	sd. sh. drlg.
General Pet. Co., No. 1 South Belridge, Kern Co.	30-28-21	11,377	suspended
Standard Oil Co., No. 1-A Belridge, Kern Co.	36-27-20	5,618	salt water
Standard Oil Co., No. 2 North Belridge, Kern Co.	36-27-20	6,900	hd. sh. drlg.
Belridge Oil Co., No. 32-35, North Belridge, Kern Co.	35-27-20	4,581	br. sh. drlg.
Standard Oil Co., No. 1 Delano, Kern Co.	1-25-23	2,455	gas—shut in
Standard Oil Co., No. 2 Delano, Kern Co.	1-25-23	2,496	sd. sh. drlg.
Standard Oil Co., No. 3 Delano, Kern Co.	12-25-23	....	bldg. rig
Standard Oil Co., No. 4 Delano, Kern Co.	34-24-23	....	bldg. rig
Trico Oil & Gas Co., No. 1 Alpaugh, Kern Co.	3-25-23	2,525	gas well
Trico Oil & Gas Co., No. 3 Delano, Kern Co.	36-24-22	4,834	sd. sh. drlg.
Trico Oil & Gas Co., No. 4 Delano, Kern Co.	3-25-23	....	rigging up
Associated., No. 1 Kern Front, Kern Co.	23-28-27	251	sd. drlg.
Kern River Oilfields, No. 2 Kern Front, Kern Co.	25-28-27	1,842	O. S. cmtd.
Republic Petroleum, No. 1 Kern Front, Kern Co.	24-28-27	....	location
Golden Bear Oil Co., No. 1 Kern Front, Kern Co.	32-27-27	4,121	sd. sh. drlg.
Hancock Oil Co., No. 6 Mountain View, Kern Co.	14-30-28	5,181	will P.B.
Hancock Oil Co., No. 7 Mountain View, Kern Co.	14-30-28	....	rigged up
Shell Oil Co., No. 1 Mountain View, Kern Co.	32-20-29	5,769	flow 3,071 b.d.
C. C. M. Oil Co., No. 1 Mountain View, Kern Co.	11-30-26	1,581	sd. sh. drlg.
Union Oil Co., No. 5 Mountain View, Kern Co.	15-30-28	5,685	flow 1,760 b.d.
Union Oil Co., No. 6 Mountain View, Kern Co.	9-30-28	7,481	sd. sh. drlg.
General Petroleum, No. 4 Mountain View, Kern Co.	14-30-28	2,730	sd. sh. drlg.
Vesta Pet. Co., No. 1 Mountain View, Kern Co.	19-30-29	3,000	redrlg. 1,671
Mohawk Oil Co., No. 10 Mountain View, Kern Co.	30-30-29	2,061	sd. sh. drlg.
Hogan Pet., No. 7 Mountain View, Kern Co.	32-30-29	5,105	sd. sh. drlg.
Hogan Pet., No. 8 Mountain View, Kern Co.	29-30-29	5,927	flow 3,190 b.d.
Jergins Trust, No. 5 Mountain View, Kern Co.	24-30-28	5,596	sd. sh. drlg.
Standard Oil Co., No. 7 Mountain View, Kern Co.	13-30-28	4,082	sd. sh. drlg.
Ohio Oil Co., No. 1 Mountain View, Kern Co.	33-30-29	5,590	suspended
Ohio Oil Co., No. 2 Mountain View, Kern Co.	33-30-29	1,160	cmtd.
Mountain View Oil Co., No. 1 Mountain View, Kern Co.	25-30-28	5,650	cleaning out
Jergins Trust, No. 5 Edison, Kern Co.	14-30-29	1,600	rig to pump
Jergins Trust, No. 6 Edison, Kern Co.	13-30-29	3,755	dry abd.
Shell Oil Co., No. 5 Edison, Kern Co.	21-30-29	4,935	Schist
Shell Oil Co., No. 6 Edison, Kern Co.	14-30-29	2,979	Bailing
Shell Oil Co., No. 7 Edison, Kern Co.	14-30-29	....	bldg. rig
Major Oil Co., No. 1 Edison, Kern Co.	18-30-29	316	sd. sh. drlg.
Chaulk Oil Co., No. 1 Edison, Kern Co.	5-30-29	3,876	test W. S. O.
Nelco Oil Co., No. 1 Edison, Kern Co.	5-30-29	1,795	sd. sh. drlg.
Mohawk Oil Co., No. 1 Edison, Kern Co.	3-30-29	3,483	sd. sh. drlg.
General Pet., No. 4 Edison, Kern Co.	14-30-29	1,708	pump 166 b. d.
General Pet., No. 5 Edison, Kern Co.	15-30-29	908	sd. sh. drlg.
Ohio Oil Co., No. 4 Edison, Kern Co.	4-30-29	....	location
Appling, C. E., No. 1 Edison, Kern Co.	4-30-29	3,005	sd. sh. drlg.
Goldman, Frank, No. 1 Edison, Kern Co.	30-29-30	415	hd. sd. drlg.
Woodward Oil Co., No. 2 Edison, Kern Co.	31-29-30	497	pump 16 b. d.
Woodward Oil Co., No. 3 Edison, Kern Co.	36-29-29	679	sd. sh. drlg.
General Pet., No. 1 Arvin, Kern Co.	1-32-29	2,590	sd. sh. drlg.
Telon Ridge Oil Co., No. 1 Comanche, Kern Co.	23-32-29	1,760	hd. sd. drlg.
Hall-Baker Co., No. 1 Arvin, Kern Co.	16-31-30	1,276	suspended
Sea Cliff Oil Co., No. 1 Greenfield, Kern Co.	7-31-28	5,771	sd. sh. drlg.
Standard Oil Co., No. 1 Semi-Tropic, Kern Co	8-27-23	3,200	gas—shut in
Standard Oil Co., No. 2 Semi-Tropic, Kern Co.	5-27-23	....	rigging up
Standard Oil Co., No. 3 Semi-Tropic, Kern Co.	7-27-23	....	location
Shell Oil Co., No. 1 Buena Vista, Kern Co.	9-32-25	6,063	gas show
Reserve Oil & Gas Co., No. 1 Tejon, Kern Co.	2-10-19	3,708	redrlg. 2,620
Reserve Oil & Gas Co., No. 2 Tejon, Kern Co.	12-10-19	2,200	hd. sh. drlg.
Taft Well Drlg. Co., No. 1 Kreyenhagen, Fresno Co.	33-22-16	....	rigging up
Standard Oil Co., No. 1 Coalinga, Fresno Co.	13-20-14	681	sd. sh. drlg.
Wellington Oil Co., No. 1 Coalinga, Fresno Co.	14-20-14	1,021	sd. sh. drlg.
Milham Expl. Co., No. 1 Ora Loma, Fresno Co.	12-12-11	3,360	sd. sh. drlg.
Russ Oil Synd., No. 1 Ora Loma, Fresno Co.	28-12-11	5,097	sd. sh. drlg.
Union Oil Co., No. 1 Lillis-Kettleman, Fresno Co.	24-21-16	10,944	redrlg. 7,427
K. N. D. A., No. 56 Kettleman, Kings Co.	8-22-18	10,154	redrlg. 10,087
Standard, No. 2 Kettleman Middle, Kings Co.	29-23-19	5,761	sd. sh. drlg.
Continental Oil Co., No. 1 Kettleman-South, Kern Co.	7-25-20	5,641	br. sh. drlg.
Farrel Pet., Well No. 1, San Luis Obispo Co.	18-31-12	1,610	cmtd.
Willett Oil Co., No. 1 Cholame, San Luis Obispo Co.	10-25-15	3,687	cleaning out
Kings River Oil Pool, Well No. 1, Tulare Co.	29-16-23	2,161	sd. sh. drlg.
Schuster, C. R., No. 1 Tulare, Tulare Co.	27-22-23	....	rig suspended
Kabella Oil Corp., No. 1 Terra Bella, Tulare Co.	12-23-27	750	granite
Commonwealth Consd. Gas, No. 1 Tulare Lake, Kings Co.	21-22-20	2,490	gas well
Commonwealth Consd. Gas, No. 2 Tulare Lake, Kings Co.	21-22-20	401	sd. sh. drlg.
General Pet., No. 1 Devil's Den, Kings Co.	20-24-18	1,892	br. sh. drlg.
Amerada Pet., No. 1 F. L. D., San Joaquin Co.	15- 2-5	3,375	hd. sh. drlg.
Pure Oil Co., No. 1 Chowchilla, Madera Co.	7-10-14	8,402	gas well—idle
Northern Counties Pet., No. 1 Tehama, Tehama Co.	25-24-3	3,996	hd. sh. drlg.
Texas Co., No. 1 Petrolia, Humboldt Co.	1- 3-2	5,736	sd. sh. drlg.
Shell Oil Co., No. 1 Branch, Monterey Co.	34-20-10	871	sd. sh. drlg.

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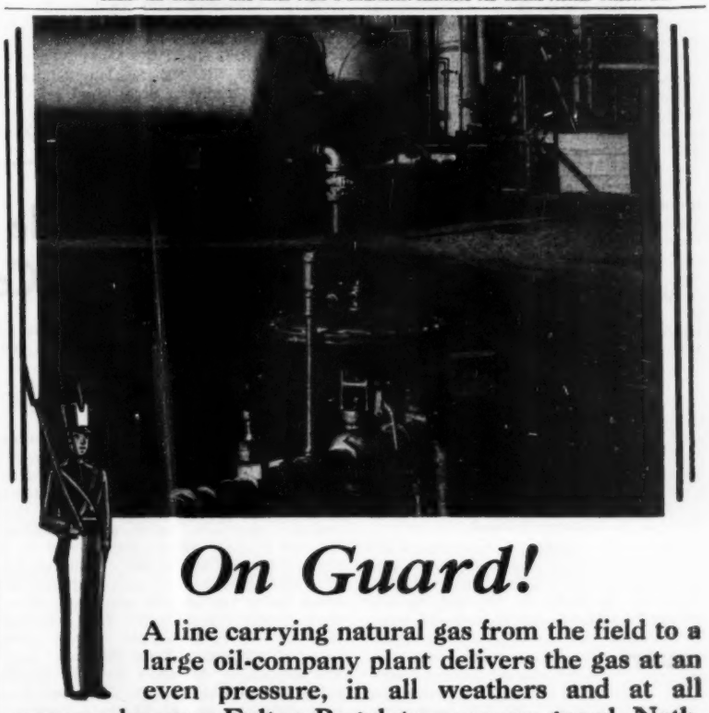

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New Production Record in the Michigan Field; Increase Reported in High Pressure Potential

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., May 6.—Michigan's output reached an average of 40,903 bbls. a day last week, or 6,609 bbls. more than the allowable of 34,300 bbls. Much of the excess, however, was credited to pipe line companies balancing their storage. The output of 11 Michigan fields in April reached 1,170,275 bbls., a daily average of 39,009 bbls.

The Michigan producers proration committee announced a new high pressure potential of 68,007 bbls., or 11,940 bbls. a day more than on April 1. The proration schedule of 75 bbls. exemption and 25 per cent allowable thereafter was unchanged although the estimate of daily runs for May was set at 38,259 bbls., or nearly 4,000 bbls. a day over the federal allowable and 3,629 bbls. over the estimated runs for April at 34,630 bbls.

The Porter Township, Midland County, Pool had an increase of 8,249 bbls. in daily pressure production from 49,877 bbls. in April to 49,126 bbls. in May and an estimated increase in daily runs from 23,842 to 26,383 bbls., or 2,541 bbls. The Yost Pool had an increase of 1,885 bbls. potential and 593 bbls. in estimated runs. Pressure production was increased from 4,197 to 6,082 bbls., and estimated runs from 1,934 to 2,527 bbls. daily.

The estimated pressure production of the Crystal Township, Montcalm County wildcat was re-rated at 4,675 bbls. a day, or 1,081 bbls. more than on April 1. Although not yet on proration, its estimated daily runs based on the 75-25 schedule, was set at 1,225 bbls. for May compared with 955 bbls. for April.

Four more wells in Ogemaw County fields and more favorable operating conditions accounted for an increase of 260 bbls. a day in the pressure production and estimated daily runs in this field.

The greater percentage of increase in number of wells occurred in the Porter Pool where 10 producers were added. Ogemaw was second with four wells, Vernon-Leaton next with two more and Yost one. Three former producers were plugged in Muskegon, two in Saginaw-Lapeer and one in Greendale. Crystal-Montcalm, Home-Montcalm, Beaverton and Oceana remained unchanged.

Completions

Ten completions in seven different areas, including eight producers, one gas well and a "duster," with one well more than doubled by treatment, added about 1,000 bbls. of new crude potential and 3,000,000 feet of gas.

Porter-Midland

Three new producers were completed in the Porter Pool, Midland County, adding about 450 bbls. initial. Pure Oil Co.'s No. 5 H. H. Peek, SE SE NW Section 16-13n-1w, flowed 400 bbls. in 24 hours but probably will be treated as it offsets a 1,000-bbl. well. Drillers struck the Dundee at 3,378 feet and suspended operations at 3,425 feet. Stork Oil Co.'s No. 4 James E. Hill, NE SE NE Section 22, made one 43-bbl. flow as drillers prepared to treat it. Dundee was topped at 3,374 feet, drilled to 3,422 feet. Northern Oil & Gas Co.'s No. 4 Glen R. Hathaway, NE NE NW Section 18, failed to flow filling up only a few feet after encountering Dundee at 3,402 feet and drilling to 3,436 feet where it will be treated. Columbia Oil & Gas Co.'s No. 5 F. H. Taulker, SW NE SW Section 7-14n-1w, Lee Township, Midland County, made 140 bbls. a day after treatment in the Dundee topped at 3,497 feet and completed at 3,540 feet. A wildcat watched with interest was J. V. Wicklund's No. 1 Carrie Neal, SE NE SE Section 13-16n-2w, Warren Township, Midland County, reported to have swabbed 10 bbls. an hour and continued making 6 bbls. an hour on the pump after being treated twice. It had been drilled to 4,096 feet striking three showings of oil in the Dundee, topped at 3,823 feet. No water was encountered.

Mid-State Development Co.'s No. 1 John Bolen, NW SW NE Section 16-14n-2w, Greendale Township, filled about 100 feet in the hole after being plugged back from 3,592 feet to 3,570 feet to test the Dundee topped at 3,512 feet. It is expected to make a small producer after treatment.

Ogemaw County

Two producers were completed in West Branch Township, Ogemaw County. Wiser Oil Co.'s No. 1 Thomas Horne, NE NE SE Section 19-22n-2e, was rated at 100 bbls. a day in the Dundee topped at 2,557 feet and drilled to 2,726 feet. Muskegon Development Co.'s No. 1 H. W. and Lulu Schulty, NE NE SE Section 29, made 50 bbls. a day in the Dundee, topping the limestone at 2,534 feet and drilling to 2,697 feet. Both were treated.

Isabella County

Daily production of Chartiers Oil Co.'s No. 1 Graham well in Section 28-15n-3w. Denver Township, Isabella County, was increased from 150 to 400 bbls. a day, or more than double by treatment. Michigan Cities Natural Gas Co.'s No. 1 Nettie C. Crowley, C SE SE Section 3-14n-6w, topped the Michigan Stray sand at 1,359 feet and drilled to 1,366 feet, making an open flow of 3,000,000 feet a day. Youman's-Dalton Oil & Gas Co.'s No. 1 Charles Wheelock, C SW NE Section 31-15n-6w, Sherman Township, was dry in the Michigan Stray sand topped at 1,390 feet and drilled to 1,423 feet.

Strike Shows

Thompson Brothers, Inc., struck a show of oil and gas in the upper Traverse in No. 1 Mills Estate, NW SE SW Section 31-21n-4e, Richland Township, an Ogemaw County wildcat, but are drilling to the Dundee.

Chapin Oil & Gas Co.'s No. 1 Sutleff, Section 16-9n-1e, Chapin Township, Saginaw County, was running casing to test a show of oil encountered in the Dundee two weeks ago.

Disregarding a flow of about 5,500,000 feet of gas encountered in the Michigan Stray sands because of a lack of immediate markets, L. G. Thompson resumed drilling in No. 1 J. K. Knapp, E SE NE Section 17-12n-9w, Winfield Township, Montcalm County wildcat near Howard City, which was hailed as the discovery well of a new central Michigan gas field two weeks ago. It will be deepened to the Traverse or Dundee limestones in search of oil.

Crystal-Montcalm

Taggart Brothers, Inc.'s No. 1 Fred Smith, SW SW SW Section 1-10n-5w, and Eastern Gulf Oil Co.'s No. 1 George W. Barger, SW SW SE Section 2-10n-5w, in Crystal Township, Montcalm County, were leading in the race to drill the second test into Dundee in this prospective pool. Both tests struck large shows of gas in the Michigan Stray sands, the Taggart-Smith estimated at about 6,000,000 feet a day and Gulf-Barger throwing a column of black water over top of the derrick when the drill penetrated the gas sands at 1,196 feet. The former was drilling at about 2,000 feet and the latter at about 1,500 feet.

More than 25 new tests are drilling in the area with 13 more of 18 new locations for which permits were issued this week, increasing total projects within a radius of 3 miles from the discovery well to more than 40.

Nine of the new Crystal locations are for tests in Crystal Township and the other four were in New Haven Township, Gratiot County. All nine of the new Crystal Township permits were issued to Eastern Gulf Oil Co.: No. 1 Z. D. and Florence Rule, SE NE SW Section 2-10n-5w; No. 2 Rule, NE NE NW Section 2; No. 1 Sylvia Curtis, NW NW SW Section 12; No. 1 Vern and Beulah Ball, SW NW SW Section 1; No. 2 George W. and Ida M. Barger, NW SW SE Section 2; No. 1 Sidney and Martha Evey, SW NE NW Section 1; No. 1 Harzey and Inez Fisher, NW NW NE Section 2; No. 1 Grant B. and Susie Race, SE NW SE Section 2, and the No. 2 Race, SW NW SE Section 2.

The New Haven Township locations are: McClanahan Oil Co.'s No. 1 A. A. Akin, SE SE NE Section 17-10n-4w; Fred L. Kircher & Jack Moffitt, Trustees' No. 1 R. B. Shaver, NW NW NE Section 4; Strange & Fortney's No. 1 M. E. Bovee, NW NE SW Section 7, and the Rex Oil & Gas Co.'s No. 1 Morse and Biddle, NW SW SW Section 20.

Pure Oil Co. took out three Porter permits: No. 4 Bond-Risley, NW NE NE Section 20-13n-1w; No. 14 Mina Narmore, NW NW SE Section 16, and No. 15 Mina Narmore, SW SW NE Section 16.

O. H. O'Neal obtained a permit for a gas test, No. 1 John Y. Border and others, C SE SE Section 31-16n-4w, Vernon Township, Isabella County, and Gordon Oil Co. for No. 1 Edgar O. Graham, SW NE SW Section 28-15n-3w, Denver Township.

A new wildcat also has been staked by Malloy, Jones and Durham on the Forro lease near Clear Lake in Section 13, Mills Township, the first test on a block of 3,700 acres, on a direct line 3½ miles southeast of the Wobig and Price extension wells in Mills and Churchill Township. Eastern Gulf Oil Co., which has considerable acreage in the vicinity, is co-operating.

Nearing Completion

Operators were looking forward to early completion of two tests in the Beaverton-Gladwin area where a 60-bbl. well was brought in about six months ago as the discovery of a possible new field and trend 15 to 20 miles northeast of the Porter-Mount Pleasant-Vernon trend.

Sun Oil Co. had re-run 5-inch casing in No. 1 Mary Hines, C NW NE Section 31-17-1w, Tobacco Township, Gladwin County, shut down at 3,815 feet awaiting final orders. Dundee limestone was reported topped at 3,706 feet, or higher on structure than expected based on M. F. Whitehill's No. 1 Omer Kintner, Section 11-7n-2w, Beaverton Township, discovery.

Trading in Crude Oils and Gasoline Futures on the Commodity Exchange

NEW YORK, May 6.—Following is a summary of trading in crude oil and gasoline futures on the Commodity Exchange during the week ending May 4:

Gasoline Futures

Prices for nearby deliveries of gasoline futures from June through November advanced 1 to 10 points, while far forward deliveries declined 1 point. The market was firm and interest spread over five trading positions, with sales totaling 630,000 gallons. June gasoline sold at a high of 6 cents and a low of 5.91 cents; December gasoline sold at a high of 6.27 cents and a low of 6.24 cents (prices include 1-cent federal tax). The principal interest was in December delivery with sales of 210,000 gallons. Sales in July and September deliveries totaled 126,000 gallons respectively, while June and August deliveries traded 84,000 gallons respectively.

Crude Oil Futures

Although the market remained inactive, crude oil futures were strong, advancing 3½ cents a barrel in all deliveries. Delivery in June was quoted at $1.23 a barrel on Saturday, while April was quoted at $1.29 a barrel.

GASOLINE

	Close	High for week	Low for week	Sales (gallons)
June	5.95N	6.00	5.91	84,000
July	6.00B	5.92	5.92	126,000
Aug.	6.05N	5.98	5.94	84,000
Sept.	6.12N	6.05	6.05	126,000
Oct.	6.16N	....	....	.....
Nov.	6.20N	....	....	.....
Dec.	6.25N	6.27	6.24	210,000
Jan.	6.27N	....	....	.....
Feb.	6.29N	....	....	.....
Mar.	6.31N	....	....	.....
Apr.	6.33N	....	....	.....
Total				630,000

The above prices for future delivery of gasoline are ex-licensed tanks in delivery areas and include 1-cent per gallon federal tax.

CRUDE OIL

	Close	High for week	Low for week	Sales (barrels)
June	1 23 N	....	....	.....
July	1.24 N	....	....	.....
Aug.	1.25 N	....	....	.....
Sept.	1.25½N	....	....	.....
Oct.	1.26 N	....	....	.....
Nov.	1.26½N	....	....	.....
Dec.	1 27 N	....	....	.....
Jan.	1.27½N	....	....	.....
Feb.	1.28 N	....	....	.....
Mar.	1.28½N	....	....	.....
Apr.	1.29 N	....	....	.....

B—bid. N—nominal.

Gasoline trading in 1,000-bbl. units. Quotations for basis grade U. S. Motor, 55-59 octane, deliverable from Exchange licensed storage in Houston-Galveston, Texas, area.

Crude oil trading in 2,000-bbl. units. Quotations for basis grade Oklahoma-Kansas, 36-36.9 gravity legally produced oil, deliverable from Exchange licensed storage in Houston-Galveston area and Cushing-Drumright, Oklahoma, area. Other grades of gasoline and crude deliverable subject to premiums and/or discounts as set forth in Exchange by-laws. Gasoline prices include 1-cent federal tax.

SAN JOAQUIN A.P.I. CHAPTER

The San Joaquin Valley chapter of the A.P.I. Division of Production will hold a meeting in the Standard Oil Co.'s recreation hall in Taft, Calif., on the evening of May 21.

Western Oklahoma Wildcats Center of Interest as Two New Pools Loom as Possibilities

By JAMES McINTYRE

Sinclair Prairie Oil Co. and Slick-Urschel, Inc.'s No. 1 Koatsch, SW SW SW Section 23-15-3w, in Logan County, was the most closely watched well in Oklahoma in the past week as it is a near completion in a wildcat area, being about 9 miles from other production. The well had second Wilcox sand at 6,322-32 feet and on a Halliburton tester showed 1,700 feet of oil in the drill pipe. Casing was cemented at 6,319 feet.

The well made one flow of about 15 minutes on Sunday, producing 70 bbls. in that time with little gas, and for the rest of the day the crew bailed. A later report on the well will be found in the late news from the field, on Page 32.

Stanolind Oil & Gas Co., Amerada Petroleum Corp., and Slick-Urschel, Inc., in their Fuller test about three-quarters of a mile southeast of production in the Lucien Pool which was classified as a wildcat because it was believed to be on a separate structure from that from which the Lucien Pool wells are producing, was completed in the past week and given a potential of 3,406 bbls. per day on the strength of its 12-hour flow test. It produces from Dolomite between the first and second Wilcox sands, while the Lucien wells produce from one or the other or both Wilcox sands.

Production in the state in the past week in review fell off from 522,750 bbls. to 458,575 bbls., a decline of 64,175 bbls. The Oklahoma City Field dropped off from 163,875 bbls. to 116,150 bbls., a decline of 47,725 bbls.

Eleven completed wells were added to the Fitts Pool. Their initial production through casing averaged 443 bbls. per well in one hour, or at the rate of 10,632 bbls. per day per well, although their average potential will doubtless be rated at about one-third of this figure, as potentials in the Fitts Pool are rated on the tubing flow after the first flush production through casing is past.

Carter's Petition

The first petition for a hearing before the Oklahoma Corporation Commission to establish spacing units as provided under House Bill 187, passed by the Oklahoma Legislature and approved on April 22, has been filed by the Carter Oil Co. This petition seeks to establish a spacing of one well to 20 acres in the unitized South Keokuk Pool in Seminole County, opened by its discovery well completed April 2 in the Misener sand at a depth of 4,127 feet with 20 feet of penetration.

Joining with the Carter Oil Co. is the Gypsy Oil Co. with 20 acres and the Magnolia Petroleum Corp, with 120 acres, which added to the 847.5 acres owned by the Carter Oil Co. make up 987.5 acres out of the proposed 1,080-acre unitized block. The remaining 92.5 acres had not been leased at the time the petition was filed.

The petition sets forth many facts developed by the geological and engineering departments of the three companies interested and based upon these conclusions the companies named feel that the spacing of one well to 20 acres will conserve reservoir energy and enlarge ultimate recovery to the advantage and benefit of lessees, landowners and royalty owners. The date of hearing has not been set.

Leasing Operations

It has been a long time since any major companies were much interested in McIntosh County, which lies south of Muskogee County and south and also east of Okmulgee and east of a part of Okfuskee and Hughes Counties, but recently the Indian Territory Illuminating Oil Co., Phillips Petroleum Co. and Magnolia Petroleum Co. have purchased leases in that county, the play having been scattered through Townships 9-14, 9-13, 12-16 and 9-15. Carl O'Hornett and B. L. Wigton were among the individuals who recently took leases in that area.

The lease play in Atoka County continues notwithstanding there is no production in the county and numerous dry holes or hopeless looking tests scattered through the county. Recent leasing has taken place in Townships 1s-14e, 3s-10e, 1n-15e, 1s-13e, 3s-12e, 4s-12e and 3s-9e. Showings of oil frequently found in drilling in that county have caused hope to spring eternal in the oil man's breast, and Atoka will be given a thorough test. One good well in that county would start a lot of drilling as it is supposed to have some kind of a regional hook-up with the southern Pontotoc oil field. The fact that it is a shallow sand region makes it attractive to the speculative operator of limited means. A few of the big companies have been in on the lease play. Failures in Coal County have not dimmed the interest in that part of the State as is indicated by the fact that Continental Oil Co. has recently taken some leases in Townships 1s-9e and 1s-10e and 3n-11e, and Mid-Continent Petroleum Co. in Township 2n-8e and Phillips Petroleum Co. in Township 1n-8e. Coal is north and also west of Atoka and east of Pontotoc County.

Wildcat Operations in Oklahoma

Week Ending May 4

NORTHERN OKLAHOMA

BECKHAM COUNTY

Fred Coogan et al's No. 1 Shelton, SW cor. Sec. 33-10-25w.
S.D. 3,608 ft.

BLAINE COUNTY

Earl Ingrahm et al's No. 1 Masters, SW NW NW Sec. 27-16-11w.
Drlg. 1,240 ft.

CADDO COUNTY

H. W. Lee et al's No. 1 Horton, NE NE NE Sec. 9-6-13w.
Rig.

H. W. Lee et al's No. 1 Stacey Ferrell, SW NE NE Sec. 3-6-13w; (2,000-ft. test).
S.D. 2,280 ft. for repairs.

CANADIAN COUNTY

R. Carl Larkin's No. 1 Brobine, NW NW NE Sec. 33-13-5w.
Drlg. 5,550 ft.

CLEVELAND COUNTY

Sinclair Prairie et al's No. 1 Franklin, SE NW SE Sec. 21-10-2w.
Hunton 6,780 ft.; drlg. 6,910 ft.

COAL COUNTY

J. D. Petty Oil Co.'s No. 1 McMillan, SW NW NE Sec. 16-1s-8.
S.D. 1,368 ft.

GARVIN COUNTY

Anderson & Kerr et al's No. 1 Rodke, NW NW SE Sec. 17-4-1w.
Location.

Charles Carter and W. S. Key, Inc.'s No. 1 Wood, C NW SW SE Sec. 5-4-3e.
Drlg. 2,340 ft.

George L. Pace's No. 1 Smith, SW NE Sec. 35-1-1.
Dry and abd. 2,523 ft.

GRANT COUNTY

Helmerich & Payne's No. 1 Crouse, C NE SW Sec. 29-25-8w.
T.D. 6,105 ft., lime; shot with 70 qts., 6,035-81 ft.; to straighten hole; C.O.

GREER COUNTY

M. C. Ent and R. C. Camp's No. 1 Simington, SW SE Sec. 29-5-21w.
Drlg. 50 ft.

Gled Oil Co.'s No. 1 Luker, SE cor. Sec. 6-4-21w.
Drlg. 930 ft.

Morgan et al's No. 1 Carder, C SW SE Sec. 19-4-22w.
T.D. 1,612 ft.; S.D. for fuel.

HUGHES COUNTY

Amerada Pet. Corp.'s No. 1-A Adams, NE NE SW Sec. 31-9-9.
First Wilcox 4,271 ft.; second Wilcox 4,307-17 ft., T.D.; H.F.W. from both sands; P.B. to 4,095 ft.; good show oil; acidized and flowed 170 bbls. gross oil in 40 min.; dropped to 60 bbls. oil in 24 hrs.; 16,000,000 ft. of gas; flowed 111 bbls. in 17 hrs. and 5,000,000 ft. of gas.

Dandridge & Crane's No. 1 Mead, NW NW NE Sec. 17-5-9.
S.D. 1,335 ft.

Freeman et al's No. 1 Kite, NW NW NE Sec. 8-6-10.
Top sand 700 ft.; show oil; S.D.

Texas Co.'s No. 1 Keaton, NW SW Sec. 4-8-10.
Drlg. 1,450 ft.

KAY COUNTY

Harris & Haun's No. 1 Schuenster, C NW SW Sec. 3-28-2.
Wilcox 3,933-45 ft.; wtr.; abd.

Bay Oil Co.'s No. 1 Holden, SW SW SE Sec. 14-28-3.
5-in. 2,945 ft.; drlg. plugs.

J. T. Lindsay's No. 1 Waggoner, NW NW NE Sec. 3-27-1.
Rigging up standard tools.

KIOWA COUNTY

Henson & Patton's No. 1 Beeler, NE cor. Sec. 11-6-15w.
T.D. 517 ft., lime; S.D.

Henson & Patton's No. 2 Beeler, NW NE NE Sec. 11-6-15w.
Sand 290-315 ft.; T.D.; H.F.W.; S.D.

Rajah Oil Co.'s No. 3 Stone, C SE NE Sec. 34-7-17w.
Drlg. 735 ft.

LINCOLN COUNTY

Carter Oil Co. et al's No. 1 McFarland C-38, SW SW NE Sec. 18-13-4.
Mayes lime 4,775 ft.; drlg. 4,900 ft.

Chester L. Carlock's No. 1 Young, C N½ NW NW Sec. 23-15-5.
R.U. rotary.

Mid-Continent Pet. Corp. et al's No. 1 Nunn, SE SE NW Sec. 25-15-1.
Rigged up.

Stanolind et al's No. 1 Campbell, SW NW Sec. 3-14-3.
T.D. 5,064 ft.; R.U. standard tools.

Stanolind O. & G. Co. and Amerada Pet. Corp.'s No. 1 Cavanaugh, SE NE Sec. 31-15-5.
Prue 3,516 ft.; cored 3,522-27 ft. and 3,537-45 ft.

LOGAN COUNTY

Anderson-Kerr et al's No. 1 Renfrow, NE cor. Sec. 33-16-4w.
Drlg. 5,740 ft.

Houghton Royalty Co.'s No. 1 Townsite, SW SW SE Sec. 13-17-1w.
Bldg. rig.

Sinclair Prairie and Slick Urschel's No. 1 Koatsch, SW cor. Sec. 23-15-3w.
Second Wilcox 6,322 ft.; T.D. 6,332 ft.; 1,700 ft. of oil in hole in 30 min.

Slick-Urschel et al's No. 1 Pennington, C SW NE Sec. 10-16-1w.
Simpson dolomite 5,534 ft.; Wilcox 5,581 ft.; no show; lost circulation at 5,587 ft.

J. C. Schaffer et al's No. 1 Hammond, SE SE SW Sec. 10-15-4w.
Drlg. 6,750 ft.

Stanolind O. & G. Co. et al's No. 1 Nunn, SE NW Sec. 25-15-1.
R.U. rotary.

MAJOR COUNTY

Indian Territory Illuminating Oil Co. and Continental Oil Co.'s No. 1 Fairview, C E½ SW SE Sec. 32-22-14w.
Bldg. rig.

McCLAIN COUNTY

Anderson & Kerr's No. 1 Newburn, N W&W NE Sec. 24-5-3.
Wilcox sand 2,933 ft.; T.D. 2,945 ft.; hole full of wtr.

NOBLE COUNTY

Marathon Oil Co.'s No. 1 Gilbert, NE cor. Sec. 24-22-2.
Wilcox sand 4,449 ft.; T.D. 4,480 ft.; flowed 1,793 bbls. in 7 days; may deepen.

Stanolind-Amerada et al's No. 1 Fuller, C SE SW Sec. 34-20-2w.
First Wilcox 5,029-74 ft.; Dolomite 5,074-5,100 ft., T.D.; flow 787 bbls. in 24 hrs.; shot 20 qts. 5,079-81 ft. and swabbed and flowed 267 bbls.; acidized; flowed 1,812 bbls. in 12 hrs.; given potential rating of 3,406 bbls.; completed.

OKFUSKEE COUNTY

Amerada Pet. Corp.'s No. 1 Jaynes, NW NW SW Sec. 20-10-10.
Hunton 3,690 ft.; 10,000,000 ft. of gas at 3,704 ft.; Wilcox sand 3,932 ft.; T.D. 4,025 ft.; 275 ft. wtr. in hole; P.B. to 3,882 ft.

OKLAHOMA COUNTY

W. H. Atkinson et al's No. 1 Reed, NE cor. Sec. 4-12-3w.
Cored 6,948-54 ft.; hard, tight, white dry sand.

Gypsy Oil Co.'s No. 1 Shock, NW SW SW Sec. 2-14-3w.
Drlg. 5,650 ft.

Sinclair Prairie O. & G. Co.'s No. 1 Corbett, NE NW NE Sec. 17-13-3w.
Drlg. 2,740 ft.

Slick-Urschel Oil Co. et al's No. 1 Owen, SE cor. Sec. 19-13-3w.
Drlg. 2,800 ft.

OSAGE COUNTY

Peters Pet. Co. and Norbla Oil Co.'s No. 1, SW cor. Sec. 15-25-5.
S.D. at 3,134 ft.

PAWNEE COUNTY

Trees Oil Co.'s No. 1 Susan Wedd, C SE SE Sec. 27-24-6.
Drlg. 1,415 ft.

(Continued on Page 89)

Oklahoma Production

Estimated daily average production of Oklahoma for the week ended May 4 and for the preceding week follows:

	Barrels	
	May 4	Apr. 27
Allen	8,350	8,300
Asher-West Asher	1,325	1,375
Burbank	8,750	8,750
South Burbank	11,000	11,000
Balance Osage	27,500	27,500
Blackwell	4,800	4,800
Bristow-Slick	9,350	9,500
Chandler	5,600	5,600
Crescent	5,675	7,400
Cromwell	4,450	4,500
Cushing-Shamrock	12,750	12,750
Duncan district	4,200	4,250
Edmond	2,650	3,075
Fish	8,325	8,950
Fitts	14,075	13,575
Gray	1,650	2,000
Graham	3,950	3,900
Healdton	9,250	9,250
Hewitt	4,750	4,750
Holdenville	1,025	1,650
Keokuk	2,250	2,200
Konawa	2,250	2,550
Lucien	8,925	10,250
Marshall-Lovell	1,000	1,000
Oklahoma City	116,150	163,875
Papoose	1,275	1,275
Polo	3,125	3,575
Saskawa and townsite	2,675	2,500
Sholem Alechem	4,000	4,000
Seminole Field:		
Bowlegs	11,325	12,825
Carr City	4,950	7,400
Earlsboro	10,100	10,175
East Earlsboro	8,950	8,525
South Earlsboro	1,250	1,200
Little River	11,575	13,025
East Little River	850	900
Maud	1,400	1,400
Mission	3,225	3,225
Seminole	10,225	11,875
East Seminole	1,125	1,225
Searight	3,875	4,825
Total Seminole	68,850	77,600
St. Louis-Pearson	22,275	24,075
Tatums	5,000	5,000
Tonkawa-Garber-Thomas	6,000	6,000
Wewoka	3,500	3,500
Yale-Jennings	4,800	4,800
Other pools	57,075	57,675
Total Oklahoma	458,575	522,750

In the Fitts Pool

In the Fitts Pool, in Pontotoc County, Magnolia Petroleum Co. completed No. 2 Schaffer, SW SE NW Section 25-2-6. It flowed 1,041 bbls. in 3 hours and 20 minutes. Top of the Bromide was found at 4,188 feet, first sand at 4,278 feet and second at 4,353 feet, total depth 4,363 feet.

Phillips Petroleum Co. completed No. 1 T. Norris, NE SE SW Section 25-2-6. It had Bromide at 4,075 feet and sands at 4,140 feet and 4,209 feet with total depth at 4,255 feet. The well flowed 1,088 bbls. in one hour through casing, and 188 bbls. the second hour through tubing, and 239 bbls. the third hour through tubing.

Phillips Petroleum Co.'s No. 6 T. Norris, SW NE SW Section 25-2-6, was finished. It had Bromide at 4,055 feet and sands at 4,150 feet and 4,225 feet, total depth 4,250 feet. It flowed 1,373 bbls. the first hour through casing and 220 bbls. in one hour through tubing. It also produced gas at the rate of 10,000,000 feet per day.

E. H. Moore and others' No. 2 Craddock, SW NW SW Section 29-2-7, was completed. Bromide was topped at 3,935 feet and sands at 4,035 feet and 4,115

feet, McLish at 4,143 feet and total depth 4,295 feet. It flowed 928 bbls. in three hours through casing.

E. H. Moore and others' No. 3 Craddock, NW SW SW Section 29-2-7, flowed 729 bbls. the first two hours through casing. Bromide was found at 3,915 feet, sands at 4,005 feet and 4,100 feet, McLish at 4,120 feet, and total depth 4,121 feet.

E. H. Moore and others' No. 4 Craddock, SW SW SW Section 29-2-7, flowed 713 bbls. in three hours through casing. Bromide was found at 3,855 feet, sands at 3,950 feet and 4,040 feet, McLish at 4,062 feet and total depth at 4,069 feet.

Carter Oil Co.'s No. 9 Richards, SE NE SE Section 30-2-7, flowed 603 bbls. in 2 hours and 50 minutes through casing. Bromide lay at 3,930 feet, sands at 4,020 feet and 4,105 feet, McLish at 4,135 feet, and total depth 4,145 feet.

Carter Oil Co.'s No. 10 Richards, SW SW SE Section 30-2-7, had Bromide at 3,865 feet, sands at 3,960 feet and 4,035 feet, McLish at 4,080 feet, and total depth 4,085 feet. It flowed 1,072 bbls. in two hours through casing, with gas at the rate of 16,000,000 feet per day.

Carter Oil Co.'s No. 12 Richards, NE SE SE Section 30-2-7, found Bromide at 3,875 feet, sands at 3,975 feet and 4,050 feet, McLish at 4,080 feet, total depth 4,083 feet. It flowed 1,035 bbls. in two hours through casing.

Deep Rock Oil Co.'s No. 4 Hardin, SE SE NE Section 30-2-7, had Bromide at 4,035 feet, sands at 4,140 feet and 4,210 feet, McLish at 4,235 feet, and total depth 4,302 feet. The well flowed 1,215 bbls. in 2 hours and 15 minutes through casing.

Carter Oil Co.'s No. 2 Julia Smith, NE NE NE Section 31-2-7, topped Bromide at 3,805 feet, sands at 3,890 feet and 3,925 feet, McLish at 3,975 feet, and total depth at 4,002 feet. It flowed 814 bbls. in two hours through casing.

All the above wells were completed.

Moore and others' No. 2 Mitchell, NE SW NW Section 31-2-7, is a location; Moore and others' No. 7 Akers, NW SW NE Section 36-2-6, location; same operators' No. 8 Akers, NW SW NE Section 36-2-6, location; Burke-Greis Oil Co.'s No. 1 Chambers-A, NE SE NW Section 36-2-6, building rig; Phillips Petroleum Co.'s No. 11 Norris, NE NW SW Section 25-2-6, location; same company's No. 12 Norris, 940 feet north and 380 feet east of SW cor. Section 25-2-6, location (correction in ownership); Magnolia Petroleum Co.'s No. 4 Schaffer, SE SW NW Section 25-2-6, rigging up rotary (correction in ownership).

Paramount Oil Co.'s wildcat, No. 1 Graham, SW SE SW Section 13-1-7, Pontotoc County, which was a hole full of water at 3,473-78 feet and which found no oil in the Bromide series, was plugged back to Hunton and shot with 40 quarts at 2,480-2,500 feet, and then treated with 1,000 gallons of acid. It was dry.

Sunray Oil Co. and Mid-Texas Oil Co.'s No. 1 Curtis, SW SE NW Section 13-1-7, had McLish at 4,364 feet and was drilling at 4,450 feet. It had found no oil.

Phillips Petroleum Co.'s No. 4 Norris, SE SE SW Section 25-2-6, which was drilled to 4,415 feet and which flowed salt water, was plugged back to 4,393 feet with sand, and to 4,390 feet with soldium silicate. On top of this, 100 sacks of cement was added. It had not been tested.

Moore and others' No. 2 Wirick, NE SE SW Section 29-2-7, deepened from 4,042 feet to McLish at 4,064-70 feet, total depth, flowed 327 bbls. of oil in one hour.

Premier Investment Co. deepened its No. 3 Layne, NW SW NW Section 30-5-5, in Pontotoc County, from 2,262 feet to Dolomite at 2,566-78 feet. It was shot and swabbed 248 bbls. of oil and 175 bbls. of water in 16 hours. It was completed.

Greater Seminole Area

Harris & Hayes' No. 1 Harjo, NE SE NW Section 11-6-6, Seminole County, was dry and abandoned at 2,935 feet. It was a wildcat test.

Magnolia Petroleum Co.'s No. 1 Hathcock, NE NE SW Section 11-7-4, St. Louis area, Pottawatomie County, is a 40-bbl. Hunton lime producer, completed at 4,043 feet. Hunton was topped at 4,040 feet. Same company completed No. 2 Hathcock, NW NE SW Section 11-7-4. It swabbed 153 bbls. in 24 hours from Hunton lime at 3,835-4,025 feet. Same company completed No. 3 Hardin, SE SE SW Section 12-7-4. It was dry and abandoned at 4,250 feet. Simpson Dolomite was topped at 4,221 feet.

Atlantic Oil Producing Co.'s No. 2 Boyd, C E half SE SE Section 7-9-5, in the Earlsboro district, Pottawatomie County, had Hunton lime at 4,152 feet and Sylvan at 4,165 feet, total depth 4,166 feet. It swabbed 330 bbls. of net oil in 24 hours, following an acid treatment in Hunton, and was completed.

Hugh Hodges' No. 1 School land, 340 feet north and 116 feet east of SW cor. Section 7-9-5, is a 30-bbl. Hunton lime well. Hunton was found at 4,163 feet, total depth 4,187 feet. It was completed.

Anderson & Kerr, and not Kimbley Oil & Refining Co., are starting No. 1-A Phillips, SE SE NE Section 32-13-10, Okfuskee County. They are rigging up standard tools.

Carter Oil Co. and others made a location for No. 1 Bruner-32, C E half NE NW Section 19-10-6, Seminole County. Kilpatrick & Moffett are deepening No. 1 Durant, C N half NW NE Section 35-11-11, Okfuskee County, and were cleaning out at 2,250 feet. Moffett and others have rig up for No. 2 Ingram, NE SE NW Section 26-11-11. Eagle-Picher Lead Co. is deepening an old gasser, No. 9 Robert Barnett, NE NE SW Section 25-11-11, and drilling at 2,764 feet.

Bruin Oil Co. was fishing for tools at 1,740 feet in No. 1-A Hattie Barnett, SW SW NW Section 25-11-11. C. E. Reynolds was building rig for No. 1-A Harris, 405 feet from west and 1,065 feet from south lines of NW quarter Section 18-6-8, Seminole County. Delaney and others were drilling at 620 feet in No. 4 Gilmore, 600 feet south and 160 feet west of NE cor. Section 29-5-8. Sunray Oil Co. was cleaning out at 440 feet in No. 12 Gilmore, NE NW SW SE Section 21-5-8, Hughes County. Bray and others' No. 1 Stanridge, NE NW SE Section 25-5-4, Pontotoc County, which was drilled to Wilcox sand at 2,804-31 feet where salt water broke in, was plugged back to 2,784 feet and shot with 40 quarts. The hole was being cleaned out.

Osage County

No big wells were completed in Osage County. F. W. Fields' No. 1 NE NE SW Section 23-21-8, was shot in sand at 962-66 feet and swabbed a 30-bbl. initial production and was completed.

Johnson Oil & Refining Co.'s No. 12, 1,165 feet from south and 505 feet from west lines of SE quarter Section 30-21-9, is a 40-bbl. pumper, completed in sand at 304-21 feet, which was shot with 40 quarts.

Comail Oil Co.'s No. 7, 984 feet south and 600 feet west of C Section 32-22-8, was completed in Red Fork sand at 2,102 feet and made an 80-bbl. initial producer.

Sinclair Prairie Oil Co.'s No. 7, SE SW NW Section 15-24-7, is a 75-bbl. completion at 2,551-95 feet, at which depth it was shot.

Lewis Oil Co. and Continental Oil Co. completed No. 9, 975 feet south and 980 feet west of C Section 16-24-7, which started off at 583 bbls. after a shot in sand at 2,580-2,640 feet. It settled down on successive days to 362 bbls., 329 bbls., and 351 bbls.

Murray Ringold made a location for No. 7, 900 feet north and 50 feet east of C Section 25-21-8. Kewanee Oil Co. is plugging back No. 1, in NE cor. Section 5-22-11, from 1,726 feet to 1,250 feet and will acidize the Big lime. Gypsy Oil Co. and Continental Oil Co. made a location for No. 3, NW SE SW Section 12-23-7. Barnsdall Oil Co. made a location for No. 17, 871 feet north and 79 feet west of SE cor. Section 18-23-12. Champlin Refining Co. had rig on the ground for No. 10, NW NW NW Section 16-24-7. Lewis Production Co. and others made a location for No. 1 Summers, 250 feet north and 1,070 feet west of C Section 17-27-2e, in Kay County. Simons and Whitecarver made a location for No. 6, 900 feet south and 1,300 feet east of NW cor. Section 31-29-12.

Pure Oil Co.'s No. 5, NE NE NE Section 25-22-7, got a hole full of water at 3,030-45 feet and was plugging back to 3,000 feet. It has a pay at 2,965-69 feet in Siliceous lime topped at 2,962 feet.

Comail Oil Co.'s No. 6, NW SE SW Section 32-22-8, was acidized in Oswego lime at 1,890-1,901 feet, and was being rigged up to pump. This well came in early in March and flowed 285 bbls. the first 24 hours. It was acidized early in April and swabbed and flowed 60 bbls. of oil and 50 bbls. of water in 24 hours. Now it will be tried on the pump.

Pure Oil Co.'s No. 36 NE SE NW Section 36-22-8, deepened from 2,720 feet to 2,767 feet, got only water. It was acidized with no results and will be plugged back.

Kay County

Harris & Haun's No. 3 Scheussler, a wildcat C NW SW Section 3-28-2, Kay County, had a hole full of water from Wilcox sand at 3,943-45 feet and was abandoned.

Logan County

The Texas Co.'s No. 4 Denny, C NE SE Section 33-17-4w, Crescent Pool, Logan County, made 1,691 bbls. in a six-hour test and was given a potential rating of 6,764 bbls. per day. It had been deepened from the first Wilcox to 6,218-29 feet, the second Wilcox.

Mid-Continent Petroleum Corp. was rigging up standard tools to deepen No. 1 Campbell, C SE NE Section 33-17-4w, present total depth 6,223 feet. Gypsy Oil Co. and Carter Oil Co. was rigged up to deepen No. 3 Knowles, SW SW NW Section 34-17-4w, old total depth 6,220 feet.

Carter Oil Co. and Gypsy Oil Co.'s No. 3 Herren, C NW NE Section 28-17-4w, stood with 2,000 feet of oil in the hole and was to be shot. It had first Wilcox sand at 6,195 feet and second sand at 6,336 feet, total depth 6,350 feet.

Oklahoma County

Marydon Oil Co. and Phillips Petroleum Co.'s No. 2 Stamper, 741 feet from north and 976 feet from east lines of SE

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quarter Section 22-11-3w, in the Oklahoma City Field, is a Wilcox sand producer which started off at 189 bbls. in six hours but is now flowing 150 bbls. per day. It was shot with 80 quarts at 6,435-6,515 feet. Completed.

Western States Oil Corp.'s No. 1 Haddock, Lot 27, Block 16, Carney Heights Addition, in NW SW SE NE Section 22-11-3w, was completed. It made 90 bbls. the first day on the gas lift from Wilcox sand at 6,423 feet, total depth 6,607 feet.

W. H. Atkinson and others' wildcat, No. 1 Reed, NE NE NE Section 4-12-3w, cored from 6,948 to 6,954 feet and recovered 4 feet of hard tight white dry sand which was salty. The hole was given geophone and Schlumberger tests and the crew was waiting for orders.

American Oil & Refining Co. was moving in material and digging pits for No. 3 Washington Park, 400 feet from north and 125 feet from west lines of SW quarter Section 35-12-3w.

Noble County

Stanolind Oil & Gas Co., Amerada Petroleum Corp. and Slick Urschel, Inc.'s No. 1 Fuller, a wildcat, C SE SW Section 34-20-2w, Noble County, was completed. It flowed 1,812 bbls. of oil in 12 hours and was given a potential of 3,406 bbls. per day. First Wilcox sand was topped at 5,029 feet. It flowed 157 bbls. in 21 hours and then 147 bbls. in another 24 hours. Base of the sand lay at 5,074 feet. There was an increase in the production from Dolomite at 5,079-81 feet. It was shot with 20 quarts at 5,079-81 feet and the well quit flowing regularly but swabbed and flowed 267 bbls. It was acidized and shut down and four days later produced 1,089 bbls. and two days thereafter it made its big flow.

Kiowa County

Gamble and others were drilling at 50 feet in No. 3 J. Hipp, NE cor. SW SW NW Section 4-6n-16w, Kiowa County.

Beckman County

West Oak Oil & Gas Co. was building rig for No. 1 Wooten, C NW NW Section 11-9-25w, Beckham County.

Southern Completions

Mudge Oil Co. has a 1,000,000-foot gasser at 880-95 feet in No. 38 Woods, NE cor. SE NW Section 26-1s-5w, Stephens County.

Henry Rosenthal drilled a failure in No. 1-B Au-che-re-ah, 300 feet south and 250 feet east of NW cor. Section 5-1n-9w, Stephens County, total depth 2,209 feet, in limestone.

L. H. Duncan abandoned No. 1 Golden & Cochran, NE NE NE Section 34-2n-21w, Jackson County, at a total depth

(Continued on Page 104)

Oklahoma Wildcats

(Continued from Page 87)

PAYNE COUNTY

Marathon Oil Co.'s No. 1 Potts, C SW SW Sec. 27-19-2.
Top Arbuckle 5,085 ft.; T.D. 5,116 ft.; P.B. to 4,550 ft.; set 6-in. 4,489 ft.; drilled plug and got wtr.; P.B. to 4,510 ft.; H. F.W.

PITTSBURG COUNTY

McAllister Pet. Corp. et al's No. 1 Chunn, C SE NW Sec. 29-4-14.
T.D. 1,530 ft.; pipe collapsed; S.D.

P. H. Gray et al's No. 1 Lee, NW SE Sec. 12-5-12.
T.D. 1,210 ft.; fishing tools.

PONTOTOC COUNTY

E. M. Blanchard's No. 1 Crabtree, NE SE NE Sec. 27-3-6.
S.D. 2,920 ft.

Philip Boyle's No. 1 McCracken, NE NW NW Sec. 31-5-4.
T.D. 2,170 ft.; set 7-in. csg.

Charles E. Carter's No. 1 Wood, NW SW SE Sec. 5-4-3.
S.D. 2,070 ft.

L. Cooper's (Crabtree) No. 1 Chandler, NE SE SW Sec. 4-5-6.
S.D. 1,780 ft.

Continental Oil Co.'s No. 1 McCarty, C SW NW Sec. 12-1-7e.
Location.

Crabb-Craw Oil Co.'s No. 1-A Breco, SE NE SW Sec. 8-4-6.
Sand 1,106-18 ft.; pumped 10 bbls. in 24 hrs.; S.D.

W. A. Delaney et al's No. 1 Fulsome, SE NE Sec. 35-4-6.
Location.

Fleetborn Oil Corp.'s No. 1 Oliver, NE NW SE Sec. 21-4-5.
Bromide 1,895 ft.; sand 2,158 ft.; dry; McLish 2,067 ft.; T.D. 2,229 ft.; dry; P.B. to 1,665 ft.

Mudge O. & G. Co.'s No. 1 Clampett, SW NW NW Sec. 10-2-6.
S.D. 915 ft.

Paramount Oil Co.'s No. 1 Graham, SW SE SW Sec. 13-1-7.
500 ft. wtr. in hole from second Bromide sand at 3,288-98 ft.; top lime 3,357 ft.; sand 3,405-08 ft.; sand 3,473-78 ft.; H.F. W.; P.B. to Hunton and shot at 2,480-2,500 ft. and then acidized; dry.

Gillette & Kroeger's No. 1 Robbins, NE SE Sec. 31-1-4.
Machine.

Gillette & Kroeger's No. 1 Duver, NW SE Sec. 36-1n-6e.
S.D. 1,300 ft.

Southern Oil Co.'s No. 1 Walker, NW NW SW Sec. 11-4-6.
T.D. 1,275 ft.; caving; P.B. to 1,175 ft. and pumped 20 bbls. oil in 12 hrs.

POTTAWATOMIE COUNTY

C. W. James et al's No. 1 Neal, C NW SE SW Sec. 4-5-3.
Wilcox 4,175-4,212 ft., T.D.; H.F.W.; P.B. to 2,739 ft. and ripped 8-in. csg. 2,690-2,700 ft.; H.F.W.; P.B. and swbd. 80 bbls. of oil in 5 hrs. at 2,690 ft.; recmtng. off wtr.

Howard Sherman et al's No. 1 Wingo, NE NW SE Sec. 32-10-5.
Wilcox at 4,380 ft.; H.F.W. 4,389-94 ft.; P.B. to 4,360 ft. and shot; pipe collapsed.

PUSHMATAHA COUNTY

Wm. Ungerman et al's No. 1 Misser, SE SW SW Sec. 35-3s-18.
T.D. 2,950 ft.; to rerun 6-in. csg.

SEMINOLE COUNTY

Ray Dorris and J. T. Hall's No. 1 Dorris, SE SE SW Sec. 31-10-7.
Sand 520-60 ft.; H.F.W.; S.D. 608 ft.

Harris & Hayes' No. 1 Harjo, NE SE NW Sec. 11-6-6.
H.F.W. 2,935 ft.; abd.

Verser & Clay et al's No. 1 Thomas, NE SE NW Sec. 1-6-6.
S.D. at 2,802 ft.

Wofford Drlg. Co. et al's No. 1 Abbott, NE cor. Sec. 33-8-7.
Rig only.

TEXAS COUNTY (PANHANDLE)

Ben F. Ash et al's No. 1 Guymon Townsite, C NE SE Sec. 30-3n-15e; (Cimarron Meridian).
T.D. 2,420 ft.; fishing for drill pipe; rig blown down.

WASHITA COUNTY

Okla.-Midwestern Oil Co.'s No. 1 Dock, SW cor. Sec. 21-8-18w.
T.D. 2,430 ft.; lost tools in hole; rig rebuilt; S.D.

Anadarko Basin Oil Co.'s No. 1 Wolf, NE SW Sec. 23-9-17w.
Rigged up and S.D.

L. P. McWhirter's No. 1 fee, SW cor. Sec. 34-8n-19w.
T.D. 300 ft.; S.D. for csg.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Keaton et al's (Brookshire) No. 1 Rowland, NW NE NE Sec. 18-3-10.
H.F.W. 3,844 ft.; P.B. 757 ft.; treated with acid.

Clark et al's No. 1 Morrison, SE cor. Sec. 32-1-14.
S.D. 200 ft.

Malernee et al's No. 1 D. O. K. Land Co., C SE SE Sec. 36-2s-13.
S.D. 3,115 ft.

H. W. Sears et al's No. 1 Downing, SE NW Sec. 17-1s-14.
Moving in tools.

BRYAN COUNTY

C B. Welch's No. 1 Collins, NE NE Sec. 19-1s-8e.
T.D. 570 ft.; U.R. 8-in. csg.

Trio Oil Co.'s No. 1 Gilbert, SW NE SW Sec. 25-8s-7.
Show oil 494-97 ft.; drlg. 521 ft.

CARTER COUNTY

Waco Turner's No. 1 Munson, NE NW NE Sec. 35-5s-2w.
Drlg. 2,945 ft.

Carter Oil Co.'s No. 1 Carter-Williams, SW NE SW Sec. 27-2s-3w (7,000-ft. test).
Drlg. 5,475 ft.

CHOCTAW COUNTY

Burns et al's No. 1 Hallum, NE NW NW Sec. 4-7s-20.
Rigging up.

COMANCHE COUNTY

H. W. Baker's No. 1 Miller, SE SW SE NE Sec. 22-2-13w.
S.D. 120 ft.

Oscar Jones' No. 1-A Sheets, NE SW Sec. 26-3-10w.
Machine.

Henry Rosenthal et al's No. 1 Au-che-re-ah, NW NW NW Sec. 5-1n-9w.
Dry and abd. 2,209 ft.

F. F. Stevens' No. 1 Green, SE SW Sec. 2-1-13w.
Drlg. 1,562 ft.

Heiden & Taylor's No. 2 Crutcher, C NE Sec. 11-1n-12w.
S.D. at 360 ft.

HARMON COUNTY

Jud Leath et al's No. 1 McConnell, NW cor. Sec. 22-3-24w.
Spudded and S.D.

GREER COUNTY

D. E. Whatley et al's No. 1 Hamilton, NW SE Sec. 25-4-24w.
Cellar.

JACKSON COUNTY

Associated Oil Co.'s No. 1 Harrell, NE SW Sec. 13-1-21w.
T.D. 1,240 ft.; lost hole; may skid.

Buell & Herndon's No. 1 Haught, SE SE NE Sec. 22-1n-16w.
Granite at 841 ft.; S.D. for orders.

J. G. Buel et al's No. 1 Kizziar, SE SE NE Sec. 2-2n-22w.
T.D. 1,860 ft.; ran 6-in. csg.

Burke-Greis Oil Co.'s No. 1 Millibrant, SW NW SW Sec. 31-3-19w.
Machine.

Burk Royalty Co.'s No. 1 Gore, SE NW SE Sec. 3-1s-20w.
S.D. at 1,909 ft.

A. H. Emenheiser's No. 1 Morrell, SE SW SE Sec. 17-3n-21w.
S.D. 910 ft.

Golden & Cochran's No. 1 Duncan, NE cor. Sec. 34-2n-21w.
Dry and abd. 2,505 ft.

Gypsy Oil Co.'s No. 1 Boucher, NW SW SW Sec. 22-1-19w.
Granite wash 1,129-43 ft.; dry; drlg. dry granite wash 1,582 ft.; S.D. 1,730 ft.; for repairs.

Gypsy Oil Co.'s No. 1 Stokes, SE NW SW Sec. 11-1-20w.
Lime 1,709-11 ft.; T.D. 1,722 ft.; S.D.

Jack Kilgore's No. 1 Wooldridge, SW SW NE Sec. 15-3n-21w.
Dry and abd. 2,266 ft.

Leper et al's No. 1 Conrad, NE cor. Sec. 25-1s-19w.
S.D. at 1,320 ft.

Marshall & Burnham's No. 1 Hess, NE SW NE Sec. 27-1s-20w.
Drlg. 852 ft.

Palo Duro Oil Co.'s No. 1 Ealum, SW SW SE Sec. 16-2-21w.
S.D. 1,025 ft.

Selby O. & G. Co.'s No. 1 Mack, NW cor. NW SW Sec. 5-2n-20w.
Spudded.

Triangle Oil Co.'s No. 1 Fox, E½ W½ NW Sec. 11-3n-20w.
T.D. 600 ft.; fishing tools.

Whatley & Whatley's No. 1 Holt, NW SW SE Sec. 20-1n-20w.
S.D. 1,430 ft.

JEFFERSON COUNTY

Gypsy Oil Co.'s No. 1 James, SW SE SE Sec. 30-6s-6w.
Drlg. shale 1,005 ft.

JOHNSTON COUNTY

W. A. Delaney et al's No. 1 Diamond, NW NE SE Sec. 5-1s-8.
Drlg. 2,100 ft.

LOVE COUNTY

Amerada and Stanolind's No. 1 W. & D., NW SE SE Sec. 37-6s-2e.
T.D. 1,872 ft.; crooked hole; may skid rig for new hole.

MARSHALL COUNTY

Jess Cook et al's No. 1 May, NE NW Sec. 12-8s-5.
Drlg. 75 ft.

Paul Robb's No. 1 Vittetoe, C NE SE Sec. 11-5s-4e.
Top Sylvan shale 5,405 ft.; T.D. 5,461 ft.; S.D.

McCURTAIN COUNTY

J. V. Scrivener et al's No. 1, NE SW SW Sec. 24-6s-21.
Drlg. 956 ft.

MURRAY COUNTY

Equitable O. & G. Co.'s No. 1 Baer, SW NW NW Sec. 21-1s-3.
Dry and abd. 2,500 ft.

Equitable O. & G. Co.'s No. 1 Ferguson, NE NE SW Sec. 36-1s-3.
Sylvan shale 223 ft.; fishing at 435 ft.

STEPHENS COUNTY

Wm. Angle et al's No. 1 Cooper, NE NW NW Sec. 23-2-7w.
T.D. 3,406 ft.; may deepen.

J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1n-4w.
Rig down; drill pipe in hole; T.D. 3,220 ft.

TILLMAN COUNTY

J. G. Buell et al's No. 1 Haught, SE NE Sec. 22-1-16w.
Drlg. 828 ft.

Cockburn & Boose's No. 1 Nichols, SE cor. Sec. 28-2s-19w.
T.D. 1,394 ft.; lost hole; may skid.

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LARKIN PACKER CO.

Kanawha Test Is Drilling Through Oriskany Sand; Twenty-eight Completions in the Eastern Field

By STAFF CORRESPONDENT

PITTSBURGH, Pa., May 6.—No deep sand completions were made in the lower eastern fields during the week although one test is drilling through the Oriskany sand. In Cabin Creek district, Kanawha County, West Virginia, Godfrey L. Cabot, Inc., is drilling at 6,217 feet in No. 52 on the Arabella D. Huntington estate. The top of the Oriskany sand was reached at 6,195 feet and the tools are 22 feet in that formation without any showing reported.

Another unreported test is now nearing the Oriskany sand. In West Union district, Doddridge County, Columbian Carbon Co. is drilling deeper No. 11 on the Lewis Maxwell farm. The present depth is 6,700 feet and the test is shut down with a cave at 3,710 feet which trapped about 3,000 feet of cable in the hole. Fishing and cementing work is now in progress. In this location the Oriskany will be found at about 6,900 feet. The well was a former Gordon sand gas well at about 2,680 feet.

In Kanawha County, Godfrey L. Cabot, Inc., is spudding the deep test on the Plus R. Levi farm in Malden district. In Elk district, Clyde Oil & Gas Co. is drilling through the Onondaga limestone on top of the Oriskany sand on the F. W. Shinn farm and the depth is 4,750 feet. Benedum & Trees shut down at 4,370 feet on the Mary C. Wingfield farm, same district. Repairs are being made. The Yoak Oil & Gas Co. has reached 3,260 feet on the W. T. and J. H. Goshorn farm. In Louden district, Godfrey L. Cabot, Inc., is down 1,350 feet on the Edgewood Realty Co. tract. In Jefferson district, Benedum & Trees are drilling at 1,724 feet on the Joseph Hill farm, another deep test.

Completions improved somewhat during the week, there being 28 operations, which consisted of 12 gas wells, 11 dry holes, and 5 producers with an initial production of only 21 bbls. Six of the dry holes were tests in Guernsey County, Southeast Ohio.

SOUTHEAST OHIO

In Athens County, Southeast Ohio, Gross and Frebault & Co. completed a test on the A. Varily farm near Fisher in Section 20, Alexander Township. It was drilled in the Macksburg sand at a depth of 565 feet and is a gas well gauging about 100,000 feet a day, initial.

In Guernsey County, Frank Lyons and others completed a test on the Zuinglius Rich farm, Lot 14, Richland Township, in the Berea grit at a depth of 1,450 feet. It is a small gas well. In this township, three other tests proved dry. On Lot 30, the Homer Winnett farm, Ferguson & McCollough drilled a test through the Berea grit to 1,440 feet and though there was a small showing of gas, it will be abandoned. In Section 9, L. Sebo and others drilled on the J. H. Haymen farm through the Berea grit to 1,404 feet. It was also dry and abandoned. In the same section, George Jewett and others drilled on the J. W. and Isaac L. Warehime farm to 1,460 feet, the same formation, and there was only a showing of oil.

In Wills Township, Guernsey County, J. T. Roach drilled a test on the Jennie Rose farm in Section 20 and completed it in the Berea grit at 1,570 feet as a small gas well. In the same section George Jewett and others drilled on the Albert and Retta Henderson farm through the Berea grit to 1,343 feet. It was dry and is being abandoned. In Westland Township, H. Salladay drilled No. 9 on the Paul Micha farm in Section 20 through this formation to 1,400 feet. It was also dry and abandoned. In Oxford Township, Section 35, Morgan and Walters drilled on the Anna F. Rose farm to 1,502 feet through the Berea grit without a showing. It is being abandoned.

In Jefferson County, a local company drilled an outside test on the Crawford heirs farm, NE Section 20, Island Creek Township. It went through the Berea sand to 1,500 feet and was dry. It was an attempt to extend the old Bluck Field.

In Medina County, E. R. Edson & Son Co. completed No. 52 on the Edward G. Miller farm, Tract 15, Lot 12, Chatham Township, in the Berea grit at 495 feet. It produced 4 bbls. the first day after shot.

In Monroe County, F. O. Parks and others completed a fair gas well on the John McCurdy farm, NW Section 35, Bethel Township. It was drilled in the Injun sand at a depth of 1,605 feet and gauges 1,500,000 feet a day. In the same township but the northwest quarter of Section 5, Homer Burkhart and others completed No. 3 on the Homer Burkhart farm in the Berea grit at 1,835 feet. It is a small producer which will make about a quarter barrel a day. In the NW Section 36 of this township, Forrest Simmons and others drilled a test on the Charles Hall farm through the Squaw sand to 1,520 feet. It was a dry hole.

In Perry County, Allegheny Oil Co. completed a small producer in No. 4 on the Elizabeth Berrisford farm, SW SE Section 33, Pleasant Township. It was drilled in Berea sand at 1,020 feet and is good for 2 bbls. a day after shot. In the SE Section 35, Thorn Township, Ohio Fuel Gas Co. drilled a test on the A. G. Winegardner farm through the Clinton sand to 2,910 feet. It was a dry hole.

SOUTHWEST PENNSYLVANIA

In Southwest Pennsylvania, there was only one completion during the week. In Wayne Township, Greene County, Manufacturers Light & Heat Co. drilled deeper No. 1 on the Mancy Rush farm to a total depth of 2,989 feet, the Fifth sand. Drilling was commenced at 2,843 feet and the top of the Fifth sand was at 2,983 feet with about 2,000,000 feet of gas a day showing at 2,987 feet. After being turned in the line, the rock pressure showed 1,000 pounds.

In other parts of Greene County several wells are drilling. In Richhill Township, Lewis & Co. have reached 950 feet on the Samuel Chess farm. In Perry Township Carnegie Natural Gas Co. is drilling deeper No. 1 on the Harvey Lemley farm and has reached 2,960 feet. The top of the Fourth sand was at 2,925 feet and extended to 2,943 feet.

In Springhill Township, Greene County, Carnegie Natural Gas Co. has reached 3,704 feet in deepening No. 2 on the George Isiminger farm. About 29,000 feet of gas is showing. In Washington Township, this company is drilling at 3,420 feet on the Russell Johnson farm.

In Gilmore Township, Greene County, Johnson & Eddy are reaming the hole before drilling deeper on the W. L. B. Roberts farm. The present depth is 2,000 feet. In Whiteley Township, Equitable Gas Co. is plugging No. 1 on the Taylor Fox farm at 3,322 feet.

In Amwell Township, Washington County, Union Gasoline & Oil Corp. is drilling on the J. C. McCoy farm at 2,880 feet. Carnegie Natural Gas Co. is building a rig on the R. M. Carrons No. 2 farm.

In West Bethlehem Township, Washington County, Furman Nuss & Co. in deepening the test on the Margaret Keys farm have reached 4,060 feet. No sands have been found below the Bayard Stray sand and it is hoped the Speechley sand will not be thinned out.

In East Findley Township, Washington County, Natural Gas Co. of West Virginia reached 2,972 feet on the P. I. Ealy farm which is being drilled deeper after the Injun sand gas failed. The top of the Fifty-Foot sand was at this depth with about 15,000 feet of gas. In this company's test on the T. C. Noble farm, the tools are drilling at 2,000 feet. Pitroi Fuel Co. has reached 460 feet on the Harvey F. Taylor farm.

In North Franklin Township, George Bungard & Co. are drilling at 420 feet on the Fred Ward lot. In South Franklin Township, Duquesne Gas Co. has reached 2,580 feet in the second test on the S. A. Dague farm. The top of the Fifty-Foot sand was at 2,547 feet with a showing of gas at 2,555 feet.

In Amwell Township, Washington County, F. K. Fawcett and others are building a rig on the Tucker heirs farm. In Cecil Township they have a location on the L. W. Phelan farm. In Morris Township Carnegie Natural Gas Co. is down 2,112 feet in deepening No. 1 on the S. L. Harvey farm.

In South Union Township, Fayette County, William Snee and others are drilling at about 1,350 feet on the Summit Hotel property. Difficulty has been encountered with water in every sand struck necessitating underreaming and casing to lower depths than expected.

WEST VIRGINIA

There were two producers completed in West Virginia during the week. In Pleasants County, Howard Hall and others completed a test on the Thomas Fleming farm on the headwaters of Little Painter Creek in McKim district in the Maxon sand at 1,800 feet. It has a showing of about 6 bbls. a day.

In Roane County, Clyde Campbell and others completed a test on the Marcellus Hart farm on Frozen Camp Run in Curtis district in the Gas sand. It is a producer showing for 8 bbls. a day natural.

Gas Wells

In Boone County, Pond Fork Oil & Gas Co. completed No. 20 on the Cole and Crane lease in Washington district at a depth of 1,026 feet, the Salt sand. It is a gas well gauging about 300,000 feet a day.

In Calhoun County, Dudley Lutz and others completed a test on the M. E. Spoon farm, mapped as the Elias Yoak farm, in Sherman district at a total depth of 2,220 feet. It is a gas well gauging 400,000 feet a day in the Injun sand.

In Clay County, United Fuel Gas Co. completed No. 4,549 on the Samuel Samples farm in Union district at a total depth of 1,841 feet. The Big Lime sand was at 1,624-1,725 feet. The Big Injun sand extended from 1,725-1,802 feet with gas showing at 1,775-82 feet. The volume is about 86,000 feet a day.

In Raleigh County, Godfrey L. Cabot, Inc., completed No. 6 on the Beaver Coal Co. lease in Slab Fork district. It is a gas well showing for 200,000 feet a day, natural, which increased to 350,000 feet a day after acid treatment. The Maxon sand was placed at 2,195-2,219 feet, with gas showing at 2,200 feet. The Big Lime extended from 2,450 to 2,840 feet. Lime and shells were found at 2,840-2,932 feet with gas again showing at 2,916 feet.

In Ritchie County, Joseph Elder and others completed a test on the Isaac M. Jackson farm in Grant district in the Injun sand at a depth of 2,042 feet. It gauges 552,000 feet a day. In this district, Russell Morris and others drilled a test on the A. C. Scaddon farm through the Injun sand to 1,995 feet. It was dry. On Elm Run in Grant district, P. Edward Deem and others drilled deeper No. 2 on the W. Clark heirs farm through the Squaw sand, 1,910 feet, and it was dry. In Murphy district, Patton and Wilson Farm Oil Co. completed No. 7 on the Patton and Wilson property at a total depth of 1,981 feet. The Maxon sand was dry but the Salt sand showed about 285,000 feet of gas a day.

In Roane County, K. M. Hunt and others completed a test on the T. J. Murray 30-acre tract in Curtis district on the waters of Mill Creek in the Salt sand. It is a fair gas well gauging 1,500,000 feet a day. It is about a half mile north of the second test on the L. M. Riddle farm.

Drilling in West Virginia

In Calhoun County, C. B. Lewis and others have made a location for a second test on the Michael J. Kight farm in Sherman district. In this district, Ferrell and others have rigged up on the Johnathan Burrows farm. In Washington district, Harper Oil & Gas Co. is drilling on the O. J. Conley farm and has reached 375 feet. J. J. Massey has made a location on the E. P. Cottrill farm. In Lee district, Everett Starcher is hauling material on the C. C. Starcher farm.

In Lincoln County, Kanawha Gas & Utilities Co. is building a road to a location on the R. R. Sloan farm in Sheridan district. In Jefferson district, Leonard V. Hobbs, trustee, is drilling deeper No. 2 on the Barrett Adkins farm and has reached 1,800 feet. In Sheridan district, United Fuel Gas Co. is abandoning No. 105 on the Huntington Development Co. lease.

In Pleasants County, J. M. Smith and others have started drilling deeper the test on the William Moreland farm in Jefferson district. It was drilled to about 1,200 feet in 1930. It is on Goff Run, a branch of Bull Creek.

In Ritchie County, on Gillespie Fork of Hughes River in Grant district, R. C. Jackson and others have started drilling on the John Lanuam farm, 2,000 feet west of the test on the James Mason farm. In this district, Gillman and others have made a location for a second test on the Albert Grouser farm.

In Murphy district, Ritchie County, W. H. Bickel has made a location on the T. J. Ireland farm. On Lambs Run in this district, King Knob Oil & Gas Co. has started drilling No. 4 on the Payton Tingler farm about 400 feet east of No. 3. In Clay district, A. R. Kelley and others have started drilling on the F. R. Ball farm.

In Roane County, Reedy Oil & Gas Corp. has a rig on the Alfred Moore heirs farm on Peniel Run in Curtis district, a half mile east of the test on the Lizzie Moore heirs farm. This company is hauling material for No. 7 on the L. M. Riddle farm. On Peniel Run, K. M. Hunt and others have a rig standing for No. 3 on the Zora Blaker and others farm a quarter mile east of No. 1. On Mill Creek in this district, D. W. Law has located a machine on the Janette Lyons farm. In Spencer district, Henderson Oil Co. and Guy Boggess and others are drilling on the E. S. Arnett farm.

In Wayne County, on the waters of Patrick Creek in Butler district, Edward Oil & Gas Co. has started drilling on the York and Huffman lease about 700 feet north of No. 2 on the Albert Ronk farm.

Forty-four Completions in Kansas in Past Week Greatly Outnumbered the New Operations

By JAMES McINTYRE

An unusual number of completed wells were recorded in Kansas in the past week, the 44 completions overshadowing the 31 new operations. In recent times the new work has kept ahead of the completed work, but the score was brought to a closer margin of difference by the host of wells reported as finished in the seven days here reviewed. Russell County led in new operations which outnumbered the completions in that county.

Interesting wildcats near completion included Allison & Fitzwilliams' No. 1 Stumps, in Section 4-18-10w, in Rice County, which pumped 218 bbls. in 24 hours from Siliceous lime, and Lario Oil & Gas Co.'s No. 1 Tudormorgan, in Section 23-24-13w, Stafford County, which pumped 298 bbls. in 24 hours.

Kansas Production

Estimated daily average production of Kansas for the week ended May 4 and for the preceding week follows:

	Barrels	
	May 4	Apr. 27
Haury-Burrton	21,625	20,650
Ritz-Canton	9,200	10,925
Hollow	4,750	7,975
Voshell	4,550	4,625
Johnson	1,500	1,473
Nikkell	4,800	4,825
Sedgwick County	8,450	8,633
Ellsworth County	4,360	3,983
Barton County	2,680	959
Rice County	19,646	18,657
Ellis County	91	479
Kingman County	1,234	1,104
Stafford County	1,632	1,702
Russell County	13,375	13,000
Greenwood County	11,000	11,000
Butler County	18,400	18,750
Other pools	17,432	17,285
Total Kansas	144,725	146,025

Russell County

The completions in Russell County in the past week numbered seven, as follows:

Stearns & Streeter and others' No. 1 Hoskins, SE SW SE Section 34-9-16w, Siliceous lime at 3,458 feet, water at 3,582-96 feet, total depth; dry and abandoned.

Palmer Oil Corp.'s No. 4 Borrell, 1,320 feet north and 330 feet west of SE cor. Section 21-13-14w, Siliceous lime at 3,268-87 feet, pumped 1,311 bbls. of oil in 24 hours.

C. Carey's No. 1 Whitman, 160 feet from north and 1,700 feet from west lines of SW quarter Section 27-13-14w, deepened from 3,285 feet to 3,300 feet, pumped a potential production of 293 bbls. in 24 hours.

Hartman & Blair's No. 1 Robach, SE SE NW Section 2-14-15w, Topeka lime 2,780-90 feet, flowed a potential production of 4,076 bbls. in 24 hours, of 39 gravity oil at 70° F. This was a wildcat, but may join up two pools.

Central Petroleum Co.'s No. 2 Dortland D., SE SE NW Section 4-14-15w, Oswald lime at 3,023 feet, total depth 3,061 feet; acidized with 1,000 gallons; pumped a potential production of 988 bbls. in 24 hours.

Kirk and Jones' No. 1 Milberger, NE NW NW Section 7-14-14w, Siliceous lime at 3,305 feet; Gorham sand at 3,309-15 feet; pumped a potential production of 187 bbls. in 24 hours.

Darby Petroleum Co.'s No. 2 Jarus, SW NW NE Section 16-16-12w, Gorham sand at 3,335½-38 feet, pumped a potential production of 926 bbls. in 24 hours, of 41 gravity oil.

New operations in the county totaled 11, including the following:

Hartman & Blair's No. 1 Claussen, SE NE SW Section 34-12-14w, a wildcat, moving in material; Hartman & Blair's No. 1 Baier, 1,570 feet west and 330 feet north of SE cor. Section 35-13-15w, cellar dug; Tom Palmer's No. 1 Bender, SE SW SE Section 16-13-14w, moving in material; British American Oil Co.'s No. 2 Boxberger, SE SE NE Section 33-13-14w, location; Gypsy Oil Co.'s No. 1 Pierce, NW NW SE Section 2-14-15w, location; Hartman & Blair's No. 1 Rouback-B, SE NE NW Section 2-14-15w, building rig; J. C. Shaffer, Inc.'s No. 1 Cram, NE SE SE Section 11-14-15w, Cellar dug; Buffalo Oil Co.'s No. 1 Kunz, NE NE SW Section 19-14-15w, a wildcat location; Hartman & Blair's No. 1 Hildebrandt, NW NE SW Section 12-14-14w, old total depth 3,252 feet, deepened to 3,345 feet and shut down; Hartman & Blair's No. 1 Rexroat, NE NW NW Section 31-14-14w, cellar dug; Lario Oil & Gas Co. and McCoy's No. 1 Dolechek, NE NW NE Section 13-16-12w, wildcat location.

Central Petroleum Co.'s No. 1 Ginther, 410 feet south and 410 feet west of NW cor. Sec. 30-12-15w, was acidized at 2,954-60 feet, and pumped 60 bbls. in 24 hours.

Buffalo Oil Co.'s No. 1 Schaffer-Anchutz, SW NW SW Section 27-13-14w, was drilling at 3,140 feet in a hole full of water. Top of the Oswald lime was at 3,003 feet.

Empire Oil & Refining Co.'s No. 2 Ehrlich, SE NE SE Section 28-13-14w, found Oswald lime at 3,000 feet and had 1,200 feet of oil in the hole at a total depth of 3,091 feet, first showing at 3,045 feet with increases at 3,062-66 feet and 3,090-91 feet.

Hartman & Blair's No. 1 Rusch, NW cor. Section 34-13-14w, was drilling at 3,275 feet with a hole full of water from 3,110-25 feet. Oswald was topped at 3,025 feet.

Texas Co.'s No. 1 Anschutz, NW NW SW Section 1-14-15w, stood with 1,700 feet of oil in the hole from Oswald lime at 3,078-83 feet.

Skelly Oil Co.'s No. 1 Opdycke, SW cor. Section 29-14-13w, was drilling at 2,890 feet with 600 feet of oil in the hole from Oswald topped at 2,861 feet.

Signal Oil Co.'s No. 2 Sellens, NE SE NW Section 26-15-13w, found Siliceous lime at 3,263-67 feet. It swabbed 50 bbls. of oil per hour for seven hours.

Reno County

In the Burrton Pool in Reno County, Barnsdall Oil Co.'s No. 9 Sabin-B, NW SW NE Section 11-23-4w, pumped 1,078 bbls. in 24 hours from Hunton lime at 3,580-84 feet, which had been acidized. It was completed. It pumped 619 bbls. in the 24 hours previous to acidizing. Same company's No. 10 Sabin-B, SE SW NE Section 11, was completed. It pumped 1,277 bbls. initially from Hunton at 3,563-76 feet. Same company's No. 12 Sabin-C, B., NE SW SE Section 11-23-4w, was completed as a gas well in Chat, after it had drilled Siliceous lime at 3,802 feet and found a hole full of water. It was good for 4,500,000 feet of gas.

Olson Oil Co. and Shell Petroleum Corp.'s No. 3 Harner, SE NE NW Section 14-23-4w, pumped 489 bbls. of oil and 300 bbls. of water from Hunton lime at 3,611-21 feet and was completed.

Olson Oil Co. and Shell Petroleum Corp. completed No. 6 Duckworth, SW NW NE Section 23-23-4w. It made a potential production of 1,491 bbls. on the pump producing from Hunton lime at 3,592-3,606 feet.

Olson and Shell's No. 5 Goering-A, NE NE SW Section 26-23-4w, pumped 1,979 bbls. potentially from Hunton at 3,569-84 feet and was listed as a completion.

Barnsdall Oil Co. and Indian Territory Illuminating Oil Co.'s No. 2 H. Baughman, SE SW NE Section 34-23-4w, which was a failure in Hunton at 3,608-15 feet and which was drilled to 3,690 feet, was plugged back and completed in Chat topped at 3,251 feet. It pumped 303 bbls. potentially.

Olson and Shell's No. 5 England, SE SW SE Section 34-23-4w, produced 1,733 bbls. initially and was completed in Hunton lime at 3,593-3,605 feet.

Gypsy Oil Co.'s No. 6 Krehbiel, C W half W half NE Section 35-23-4w, pumped 691 bbls. of oil and 70 bbls. of water in its potential test, producing from Hunton at 3,576-93 feet, and was completed.

Olson and Shell's No. 5 Goering-B, C E half E half NW Section 35-23-4w, was good for 1,140 bbls. in its potential pumping test from Hunton lime at 3,575-79 feet. It was completed.

Olson Oil Co. and Shell Petroleum Corp. made a location for No. 6 Goering-A, C S half S half Section 26-23-4w, and was drilling at 1,064 feet in No. 2 Krehbeil-B, C E half W half NW Section 26-23-4w; Olson, Shell and the Continental Oil Co. were building rig for No. 6 Krehbiel, C W half E half NW Section 26-23-4w. Olson and Shell made a location for No. 8 Goering-B, C N half N half Section 35-23-4w.

Barnsdall Oil Co.'s No. 2 Sabin-A is a near completion. The well, located in the NE SE NW Section 11-23-4w, was acidized after it had pumped 308 bbls. of oil and some salt water. Same company's No. 11 Sabin-B, NE SW NE Section 11-23-4w, was acidized in Hunton lime but not tested.

Sinclair Prairie Oil Co. has a hole full of oil from Siliceous lime at 3,807-18 feet, in No. 4 Harner, NE SE SW Section 14-23-4w. Siliceous lime pay was opened up by Barnsdall Oil Co. in this field some months ago, but operators have been slow in developing its possibilities because of the prolific production of the Hunton lime which lies above it.

Olson and Shell's No. 2 Johnson, C NW NW Section 24-23-4w, which found Chat at 3,257-68 feet, flowed 14 bbls. of oil in 17 hours and 10,000,000 feet of gas.

Rooks County

Stearns & Streeter's wildcat test, No. 1 Hoskins, SE SW SE Section 34-9s-16w, Rooks County, was a failure. It had Siliceous lime at 3,458-96 feet and a hole full of water. The test was abandoned.

Ellsworth County

Lario Oil & Gas Co.'s No. 1 Wright, SW SW NE Section 17-16s-8w, a wildcat in Ellsworth County, was a hole full of water from Siliceous lime at 3,392-3,400 feet, and was abandoned.

Atlantic Oil Producing Co.'s No. 3 Rolfs, NW NE SE Section 14-17-9w, made a potential production of 1,487 bbls. from Siliceous lime at 3,193½-97 feet and was completed.

Magnolia Petroleum Co. acidized No. 4 Andrea, NW NE NW SW Section 7-17-10w, in Siliceous lime at 3,368-84 feet, which made only a trace of oil. It had not been tested.

Empire Oil & Refining Co.'s No. 1 Rolfs, SE SE NE Section 14-17-9w, pumped 508 bbls. in 24 hours from Siliceous lime at 3,189-95 feet.

Rice County

Phillips Petroleum Co. and Indian Territory Illuminating Oil Co.'s No. 1 Krampe, C W half NW SE Section 31-19-10w, Rice County, had Siliceous lime

Wildcat Operations in Kansas

Week Ending May 4

(Descriptions are East unless marked otherwise)

BARBER COUNTY

Sam Jarvis et al's No. 1 Morrisse, C SE NE Sec. 23-30-10w.
Rig.

Southern Drlg. Co. et al's No. 1 Davis, 330 ft. from W and 330 ft. from S lines of NE Sec. 13-34-15w.
S.D. 2,865 ft.

L. H. Wentz' No. 1 Skinner, SE NW NW NE Sec. 29-31-14w.
Spudded.

BARTON COUNTY

D. I. Hall et al's No. 1 Arnold, SE SE SW Sec. 19-18-15w.
Moving in tools.

Lario O. & G. Co. and McCoy's No. 1 Dolechek, NE NW NE Sec. 13-16-12w.
Location.

Lario O. & G. Co. et al's No. 1 Nuss, NW SW SW Sec. 11-16-14w.
Drlg. 1,330 ft.

Lario O. & G. Co. et al's No. 1 Nuss, NW SW NW Sec. 11-16-14w.
Drlg. 910 ft.

McMorrow & Spencer's No. 1 Hagen, NE cor. Sec. 33-20-11w.
U.R. 5-in. to 3,512 ft.

C. L. Price et al's No. 1 Ehrlich, NW SE Sec. 10-16-13w.
T.D. 360 ft.; fishing.

Pryor & Lockhart's No. 1 Herrington, NE NW Sec. 6-16-12w.
Rigged up.

Suppes & Witt's No. 1 Hayes, SW cor. Sec. 7-16-15w.
Rigged up.

Torry-Feaster et al's No. 1 Feist, NE SE Sec. 29-18-11w.
Location.

Wolf Creek Oil Co.'s No. 1 Kraft, SW cor. Sec. 26-16-11w.
Siliceous lime 3,370 ft.; 300 ft. of oil in hole at 3,396-97 ft.; S.W. at 3,400-02 ft.

BUTLER COUNTY

Ward McGinnis' No. 1 Jackson, SW NE Sec. 26-25-8.
Spudded.

Sanford et al's No. 1 Cron, SE SE SE Sec. 1-23-4.
Drlg. 1,900 ft.

CLAY COUNTY

Seidel Bros.' No. 1 Younken, C S½ SE NW Sec. 21-9-4.
Mississippi 1,772-81 ft.; est. 25 bbls. oil and some wtr.; now 5 bbls. oil and 10 bbls. of wtr.

COWLEY COUNTY

Baden, Johnson Roth & Faurot's No. 1 David, NE SW Sec. 35-30-4.
Moving in materials.

Lloyd, Frost & Study's No. 1 Weathered, SW SE SE Sec. 28-31-3.
Stalnaker sand 2,075 ft.; est. 24 bbls. dly. from 2,087-89 ft.; drlg. 2,360 ft.; H.F.W. 2,310 ft.

A. McCoy's No. 1 Brandenburg, SW SE SE Sec. 17-34-5.
Coring 2,280 ft.

ELLIS COUNTY

Tom Palmer and Storm King Oil Co.'s No. 1 Ruder, SE NE NW Sec. 17-15-18w.
Rig.

Stanolind O. & G. Co.'s No. 1 Penney-Wann, NW SW SE Sec. 12-15-20w.
Bldg. rig.

ELLSWORTH COUNTY

Lario O. & G. Co. et al's No. 1 Central National Bank, SE NW Sec. 33-15-8w.
Spudded and S.D.

Lario O. & G. Co.'s No. 1 Wright, SW SW NE Sec. 17-16-8w.
Dry and abd.; Siliceous lime 3,392-3,400 ft.

Lario O. & G. Co.'s No. 1 State, SW cor. Sec. 29-15-8w.
Siliceous lime 2,997 ft.; drlg. 3,001 ft.

Western Exploration Co.'s No. 1 Wilkins, NW SW NW Sec. 9-17-9w.
Spudded.

(Continued on Page 105)

at 3,285-88 feet, total depth 3,301 feet. It pumped a potential production of 1,720 bbls. in 24 hours and was completed.

Texas Co. completed No. 8 Grove, SE NE NE Section 29-19-9w. It pumped a potential of 909 bbls. in 24 hours from Siliceous lime at 3,207-09 feet, total depth 3,216 feet.

Empire Oil & Refining Co. completed a 1,470-bbl. initial producer in No. 5 Proffitt, SW NE SE Section 6-20-9w, in Siliceous lime at 3,254-61 feet.

Gypsy Oil Co.'s No. 8 Christopher, NW NW NE Section 6-20-9w, pumped a 633-bbl. potential from Siliceous lime at 3,240-45 feet. It was also making 40 bbls. of water. It was completed. Same company completed No. 8 Christopher, SW SE NE Section 6-20-9w, in Siliceous lime at 3,256-65 feet. It pumped 438 bbls. initially. Same company's No. 10 Christopher was good for 1,068 bbls. in its potential test, producing from Siliceous lime at 3,258-63 feet. It is in the SE SW NE of Section 6.

Gypsy Oil Co. was building rig for No. 2 Callis, 982 feet south and 330 feet east of NW cor. Section 29-19-9w.

Allison & Fitzwilliams' No. 1 Stumps, NW NW SW Section 4-18-10w, a wildcat, pumped 218 bbls. in 10 hours from Siliceous lime at 3,229-61 feet, which had been acidized. The well is located about a half mile from a 3,319-foot dry hole. It opens a new pool in Rice County.

Roy Ramsey's No. 3 Hilton, SE SE SW Section 6-20-9w, swabbed 70 bbls. the first hour from Siliceous lime at 3,268-87 feet.

Keith and others' No. 2 Volkland, NE NE SE Section 20-19-9w, pumped 487 bbls. in 24 hours from Siliceous lime at 3,225-60 feet. It was later treated with acid.

Greenwood County

C. I. Ross' No. 1 Uhl, SW SW NE Section 3-23-11, Greenwood County, had sand at 1,885-90 feet, which produced only water and the hole was abandoned.

OKO Oil Co.'s No. 5 Lovett & McNeill, NW NE SW Section 22-23-13, was a 10-bbl. completion after an acid treatment at 1,728-47 feet.

Bert Young completed a 10-bbl. well in No. 2 Coffman, SW SW NE Section 10-24-12, in Mississippi lime at 1,840-47 feet, which had been acidized..

Shull Drilling Co.'s No. 5 Allis, SW SE NW Section 17-24-13, started at 10 bbls. from Mississippi lime at 1,588-1,600 feet, acidized.

Cross & Field's No. 3 Mason-X, C E half NW SW Section 14-25-13, was good for 20 bbls. initially from sand at 1,455-73 feet, shot with 30 quarts. It was completed.

Houston-Oklahoma Oil Co. had a machine in for No. 1-A Pegram, C NW NW Section 33-23-13, previously reported as Sullivan and others. Markus and others have machine in for No. 3 Smith, NW NW NE Section 6-24-12, previously reported as Henderson & Holden. Another corrected report is Landon and others' No. 4 Hollister, SW NW SE NW SE Section 5-25-13, drilling at 500 feet, previously reported under the name of Mendenhall.

Harvey County

Estes & Nye completed No. 1 Short, C NW NE Section 30-23-3w, Harvey County, found pay at 3,337-43 feet and acidized it. It was good for 170 bbls. on its potential test and was listed as a completion.

Sunray Oil Co. and others have cellar dug for No. 1 Sparling, NE SE NE Section 23-22-2w, previously reported as Imo Oil & Gas Co.

Marathon Oil Co. deepened No. 3 Duerksen, SE SW NE Section 19-22-3w, Hollow Pool, Harvey County, from 3,454 feet to 3,475 feet and acidized. It pumped 3 bbls. in 24 hours.

McPherson County

Dickey Oil Co. drilled into a 9,300,000-foot gas production in its No. 2 Tull, SE NE SW Section 13-19-3w, McPherson County, in Chat at 2,955-57 feet and at 2,990-98 feet the gas increased to 23,000,000 feet. It was not completed.

Ogden Brothers' No. 1-A Chindberg, NE SE NW Section 18-19-2w, which was acidized in Chat at 2,982-3,017 feet, made 100 bbls. in its latest 24-hour test. The well came in early in April but has not been completed.

Dickey Oil Co.'s No. 2 Gustafson, SE SW NW Section 30-18-2w, had Kansas City lime at 2,340-51 feet, and swabbed 27 bbls. in nine hours. It was then acidized.

Roth & Faurot were moving in material for No. 6 Almen, SW SW SE Section 13-19-3w. Lario Oil & Gas Co. and Shell Petroleum Corp. were rigged up to start No. 2 Neufeldt, NW SW NW Section 34-21-3w, to deepen it from 3,472 feet.

Sumner County

Barnsdall Oil Co.'s No. 4 Wenrich, NE NW NW Section 23-32-2e, Sumner County, deepened from 2,110 feet to Siliceous lime at 2,889-99 feet, pumped 320 bbls. of oil and about 8 bbls. of water and later pumped 136 bbls. of oil in 24 hours and was completed.

E. B. Shawver had rotary rig up for No. 3 Frankum, NE SE NE Section 32-31-1w.

Stafford County

In the Richardson Pool in Stafford County, Stanolind Oil & Gas Co. completed No. 2 Heven, NE SE NW Section 31-22-11. It pumped 1,133 bbls. in 22 hours from Siliceous lime at 3,519-25 feet.

Empire Oil & Refining Co. has made a location for a wildcat test, No. 1 Groves, NE NE NW Section 5-22-11w.

Marion County

White Star Oil Co. drilled a wildcat dry hole in No. 1 Doyle, C NW NW Section 20-21-5, Marion County. Chat at 2,343-57 feet yielded nothing but water. It was abandoned.

Sedgwick County

Phillips Petroleum Co. drilled a failure in its No. 1-A Masters, NE NW SW Section 4-23-2e, in Sedgwick County. It was a hole full of water at 2,475 feet and was abandoned.

Dickey Oil Co. finished a 310-bbl. well in No. 5 Nolan, SW SE NE Section 20-28-1e, in pay at 3,107-16 feet which had been acidized.

Aylward and Shell Petroleum Corp. were moving in material for No. 2 Stolie, NW SE SW Section 11-26-2e. Magnolia Petroleum Co. made location for No. 9 Robbins, 1,027 feet east and 300 feet from north lines of SE quarter Section 20-28-1e.

Kingman County

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. made a location for No. 2 Hilger-A, NW SE NW Section 16-26-4w, Kingman County.

Cowley County

W. E. Orr abandoned at 170 feet his No. 1-A Malick, C NW SW Section 13-34-6, Cowley County.

Otstot and others abandoned their No. 1 Eckhardt, SE SE NW Section 15-35-6, at spudding depth. The hole was spudded last August.

Butler County

R. L. Hodge's No. 2 Glaze, 790 feet from the north and 450 feet from the east lines of the SE quarter Section 4-29-4, Butler County, was dry and abandoned at 1,895 feet.

Sanford and others were drilling at 1,900 feet in No. 1 Cron, SE SE SE Section 1-28-4.

Elk County

Denny and others' No. 1-A Eagle Head ranch, NE cor. Section 19-30-9, in Elk County, had 300 feet of oil in the hole from Kansas City lime at 1,955-64 feet, but it was abandoned without a test. The hole is within 100 feet of No. 1 on the lease.

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Four New Locations in Lea County, New Mexico; Seismograph Parties Are Active in Colorado

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., May 6.—Two completions and four new locations were reported in Lea County, New Mexico, Pools. The Texas Co.'s No. 1 Parker, the farthest south of any well in Lea County, made 11 bbls. per hour, 60 per cent water. Hammond, Inc., No. 1-B Sholes, in the Jal Pool, made 50 bbls. an hour through the tubing on a one-half inch choke. New locations included one in the Eunice Pool by Humble Oil & Refining Co., one by Continental Oil Co., which will feel out the northwest flank of the Hobbs Pool, a wildcat 3 miles north of the Amerada company's discovery in the Monument area by the Texas Co., and one in the Jal Pool. The Grayburg Oil Co.'s No. 6 Burch, Maljamar Pool, Eddy County, made 365 bbls. initial. Skelly Oil Co.'s No. 1 Dow, in the same district, made 40 bbls. initial after shooting and acidizing.

There were no completions nor new locations in Colorado. Several seismograph parties are operating in the eastern part of the state.

Peay Oil Co.'s No. 1 Denio, in a fault block in the Byron district in Wyoming, averaged 200 bbls. a day for five days. One new operation was reported in the La Barge Field, where spring activities are beginning.

One completion, the Texas Co.'s No. 6 Hinkle, for 92 bbls. initial, and two new locations by Santa Rita Oil & Gas Co. were reported in the Cut Bank Field in Montana.

NEW MEXICO

Cooper Area

There were no completions nor new locations in the Cooper Pool.

The Texas Co. has a near completion in its No. 1-B Ogg, C SE SE Section 34-24-36, which was drilled to 3,513 feet and flowed 78 bbls. per hour through the tubing from the pay at 3,510-12 feet for four hours after which it was shut in for tankage. Same company's No. 2-B Ogg, C SE NE Section 34-24-36, is waiting after cementing the 7-inch at 3,354 feet with 200 sacks, and its No. 3-B Ogg, C NE NE Section 34-24-36, is rigging up rotary.

Continental Oil Co.'s No. 23-A-2 Gates, C NW NW Section 23-24-36, has rig up, and its No. 26-A-1 Gates, C SW SW Section 26-24-36, began spudding April 17, set the 10¾-inch at 275 feet with 200 sacks, and is drilling at 900 feet in red beds.

Stanolind Oil & Gas Co.'s No. 4-A Meyers, C NE SW Section 22-24-36, which flowed 1,200 bbls. a day, 97 per cent water, at 3,620 feet, and then shut down for orders, has plugged back to 3,570 feet and is waiting on cement. The Empire Gas & Fuel Co.'s No. 4 Everett, C SW SW Section 35-24-36, has cellar and pits completed. Simms Oil Co.'s No. 1 Woolworth, C SE NE Section 35-24-36, plugged back to 1,440 feet and again is attempting to drill by junk in the hole. Old total depth is 3,406 feet.

Amerada Petroleum Corp.'s No. 1 Isabell, C SE NE Section 15-24-36, is a near completion at 3,550 feet, in lime. A drill stem test at 3,538-50 feet yielded 1,900,000 feet of gas and 50 bbls. of oil per hour. It then cemented the 7-inch at 3,325 feet and is waiting. The top of the pay is at 3,537 feet. It is located half a mile to the north of Continental's No. 15-A-1 Vaughn, the nearest producer, and will prove up some additional territory.

General Crude Oil Co.'s No. 1 Cooper, C NW SE Section 26-24-36, is drilling at 2,550 feet in anhydrite. Humble Oil & Refining Co.'s No. 1 Coats, C NW NE Section 10-24-36, ran the 3-inch and is attempting to kill the well with a Haliburton job. No. 2 Coats is pumping 200 bbls. of water per hour into the hole to aid.

Amos G. Carter and others' No. 1 Mattix, C SE NW Section 3-24-37, 6 miles northeast of the Cooper Pool, topped the anhydrite at 1,090 feet, the salt at 1,225 feet and is drilling at 1,294 feet in anhydrite.

Jal Area

Two completions and one new location were reported in the Jal area.

The Texas Co.'s No. 1 Parker, C SW SW Section 29-26-37, the most southerly well in the field and only 1 mile north of the Texas line, was completed at 3,248 feet and flowed 11 bbls. of fluid per hour, 60 per cent water, through the 2-inch tubing at 3,248 feet, with packer at 3,000 feet. The 7-inch was cemented at 3,011 feet and the pay was at 3,243-48 feet. The elevation is 2,952 feet.

The other completion was Hammond, Inc.'s No. 1-B Sholes, SE cor. NW Section 13-25-36, a farm-out from the Continental Oil Co. It was drilled to 3,254 feet and flowed 50 bbls. per hour with 3,500,000 feet of gas through the 2½-inch tubing at 3,246 feet on a one-half inch choke. The pay was found at 3,242-54 feet and the 5½-inch was set at 3,237 feet. The elevation is 3,138 feet. It is a west offset to the Repollo Oil Co.'s No. 1 Stevens.

The new location is Tide Water Oil Co.'s No. 1 Coats, SE cor. NW Section 31-25-37, which has cellar and pits completed. The location is in a district southeast of the north pool where there is a pronounced increase in activity.

Byrd-Frost, Inc.'s No. 1-A Wells, SE cor. NW Section 12-25-36, is spudding at 90 feet in red beds. Amerada Petroleum Corp.'s No. 1 Dyer, C SW NE Section 31-25-37, is rigging up rotary. R. H. Henderson and others' No. 1 Langlie, C SE SE Section 8-25-37, which has been having bad luck ever since it encountered a flow of 2,500,000 feet of gas a day at 2,875 feet, cemented the whipstock at 2,506 feet to drill by two strings of cable tools, then lost the whipstock and is now fishing for same.

Hammond, Inc.'s No. 2-B Sholes, NE cor. NW Section 13-25-36, is bottomed at 3,207 feet and is testing. A drill stem test at 3,169-89 feet showed for 13,000,000 feet of gas.

Gypsy Oil Co.'s No. 1 Arnott, C NE NW Section 2-25-36, began spudding April 22 and is drilling at 200 feet in red beds, and its No. 2 Arnott, C NW NE Section 2-25-36, is still a location. Its No. 1-B Arnott, NW SW SW Section 32-25-37, is building rig. Empire Gas & Fuel Co.'s No. 2 Dyer, NW cor. SE Section 31-25-37, is rigging up rotary.

Eunice Area

The only new operation in the Eunice Pool is Humble Oil & Refining Co.'s No. 4-B State, C NW NE Section 29-21-36, a location.

A near completion is the Tide Water Oil Co.'s No. 4 State-Foster, C NE NE Section 8-21-36, which was drilled to 3,887 feet and flowed 190 bbls. in 24 hours through the 2-inch tubing with 5,136,000 feet of gas. It is standing treated with 2,000 gallons of acid. The pay was at 3,780-3,880 feet. The elevation is 3,684 feet.

Skelly Oil Co.'s No. 2-B State, C SW NW Section 16-21-36, one location to the south and east of production, had a show of oil at 3,775-81 feet and is coring at 3,894 feet and showing saturation. Atlantic Oil Producing Co.'s No. 1-E State, C NE SW Section 5-21-36, is drilling plug after cementing the 9⅝-inch at 1,340 feet with 500 sacks. Amerada Petroleum Corp.'s No. 1 Houston, C SE NE Section 7-21-36, began spudding April 19, set the 12½-inch at 275 feet with 175 sacks, and is drilling at 490 feet in red beds.

Shell Petroleum Corp.'s No. 1-A State, C SE NE Section 12-21-35, west of the pool, which has been attempting to clean out bridge after plugging back from 4,404 feet to 3,926 feet and shooting, has cleaned out to 3,879 feet and swabbed and flowed 149 bbls. of fluid, of which 67 bbls. were oil and 82 bbls. were water. Fluid rose 3,100 feet in 13 hours. It is still testing. Water is believed to be fresh and coming from behind the pipe.

Humble Oil & Refining Co.'s No. 3-B State, C NW SE (cor.) Section 29-21-36, is drilling at 2,547 feet in new hole.

Continental Oil Co.'s No. 18-A-2 Meyers, C NW SE Section 18-21-36, is testing at 3,919 feet, total depth. It showed for 15,000,000 feet of gas at 3,805-65 feet and oil at 3,865-70 feet. Same company's No. 20-C-4 State, C SE SW Section 20-21-36, is drilling at 3,200 feet in lime, and its No. 30-A-2 Lockhart, C NE NE Section 30-21-36, is rigging up rotary. Continental's No. 20-C-5 State, C SW SW Section 20-21-36, is rigging up rotary. Same company's No. 8-B-2 Meyers, C NE NW Section 8-21-36, was drilled to 3,800 feet and a drill stem test at 3,750-3,800 feet showed oil and some gas. The 5½-inch was set at 3,747 feet with 300 sacks and it is waiting. Continental's No. 9-B-3 Meyers, C SE NW Section 9-21-36, is spudding. Repollo Oil Co.'s No. 2 Adkins, SW cor. NE Section 9-21-36, is rigging up rotary. Ohio Oil Co.'s No. 3 State-McDonald, C NE SW Section 16-22-36, began spudding April 22, set the 13⅜-inch at 287 feet with 200 sacks, and is drilling at 1,350 feet.

Rowan Drilling Co.'s No. 1 Elliott, C NE SW Section 17-22-37, is bottomed at 2,595 feet and waiting after setting the 7-inch at 2,578 feet with 350 sacks.

Hobbs Area

The gradual feeling out of the territory on the northeast side of the Hobbs Pool to find the limits of the productive area in that direction is being continued and a new location was released this week in the Continental Oil Co.'s No. 13-B-1 State, C SE SW Section 13-18-37. It is a north offset to Shell Petroleum Corp.'s No. 2-D State, a producer, and half a mile west of Shell's No. 1 Rice.

Gypsy Oil Co.'s No. 4 Graham-State, C NW NE Section 24-18-37, is drilling at 1,532 feet in anhydrite, and Continental Oil Co.'s No. 3 Grimes, SW NW SE Section 28-18-38, cemented the 5½-inch at 4,015 feet with 300 sacks and is waiting. Shell Petroleum Corp.'s No. 1 Turner, SW cor. NE Section 34-18-38, is shut down at 4,226 feet after testing 236 bbls. in one hour. Cusack, Inc.'s No. 2 Moon, SW SE NE Section 28-18-38, began spudding April 21 and is waiting after cementing the 12½-inch at 235 feet with 150 sacks. Capitan Oil Co.'s No. 2

Royalite No. 26 Blows In as Largest Well Yet Found in North Turner Valley

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, May 4.—In the North Turner Valley Field, Royalite Oil Co.'s No. 26, LSD 5, Section 23-20-3w5, has blown into production at 5,083 feet, 190 feet in the Madison limestone, with a wet gas flow, estimated from 25,000,000 to 30,000,000 feet a day, believed to be the largest well in the field, comparing with Royalite Oil Co.'s No. 4 which, more than 10 years ago, tapped the first naphtha production. A 24-hour test on the separator showed naphtha recovery of 265 bbls.

Royalite's No. 26 offsets Model Oils' No. 1, some 800 feet to the southeast. Model's No. 1 came into production some years ago with 11,000,000 feet of wet gas and considerable naphtha. Later it changed to crude oil, the first well in Turner Valley to produce crude oil from the Madison. Royalite's No. 26 logged much higher than the Model well, getting the Madison at the highest point recorded in North Turner Valley. It is the fourth producer in the field, Foothills Oil & Gas Co.'s No. 1 being a large well and Model Oils' No. 2 a small naphtha producer. Royalite's No. 26 is 3 miles north of the main producers in the old Central Turner Valley Field, 6 miles north of the Home wells and about 10 miles north of the new extension of South Turner Valley. Drilling was handled by Hilary Head and crew in the record time of 120 days with one brief fishing job, constituting a new drilling record for the field.

Completion of Royalite's No. 26 as a big producer may lead to some additional drilling in North Turner Valley. Royalite Oil Co. controls the entire Section 23 with some outside acreage. Model Oils, Ltd., has protected itself by acquiring LSDs 1 and 2 in Section 22, south of its No. 1 producer, and will probably drill in LSD 1.

Official figures at Edmonton show crude oil production from Alberta fields in March totaled 108,082 bbls., compared with 98,753 bbls. in February. Turner Valley naphtha increased from 94,584 to 102,727 bbls., Turner Valley light crude from 1,430 to 1,870 bbls., Red Coulee light crude from 1,425 to 2,178 bbls., while Wainwright heavy crude decreased from 1,314 bbls. in February to 1,307 bbls. in March.

In the Turner Valley Field, Royalite Oil Co. remained the most important producing unit, with 36,185 bbls. The Mercury-Miracle-Mill City group produced 15,953 bbls., and Highwood-Sarcee Oils' No. 1, with 6,927 bbls., ranked third and was the largest individual producing well. Model Oils, Ltd., with two producers, ranked fourth with 5,051 bbls, and Century Royalties No. 1 fifth with 4,683 bbls., a comparatively new producer in Section 28-18-2w5. Among the new producers, Carleton Royalties' No. 1 deliv-

(Continued on Page 95)

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Turner, SW SE Section 34-18-38, is drilling at 3,564 feet in anhydrite and shale.

National Securities Oil Co.'s No. 1 Linam, NE SE SW Section 33-18-37, to the southwest of Hobbs, is plugging back from 4,506 feet to 4,250 feet.

Monument Area

The Texas Co. spotted a well in the new Monument area this week in its No. 1 Saunders, C SE SW Section 18-19-37, 3 miles north and a little east of the Amerada Petroleum Corp.'s discovery well. Amerada's No. 1-F State, C SW SW Section 36-19-36, an offset to the discovery, is drilling at 2,785 feet in anhydrite.

Lea Area

Jeffers Oil Co.'s No. 1 Etz, C NE SW Section 12-21-32, spudded with machine to 144 feet and is rigging up standard cable tools. Anderson & Pritchard's No. 1 Fisher, C SE NE Section 8-20-35, is drilling at 1,685 feet in red beds, and the Jeffers Oil Co.'s No. 1 Jiminez, C SW SE Section 12-20-33, is drilling at 105 feet in red beds with machine.

The Texas Co.'s No. 1 Cole, C NE NE Section 35-19-33, is bottomed at 3,450 feet and running 7-inch to shut off sulphur water at 3,393-3,400 feet.

Nadine Area

Repollo Oil Co.'s No. 1 Arnold, SW NW SE Section 11-20-38, is drilling at 4,204 feet in sandy lime. A drill stem test at 4,006-4,165 feet yielded no results.

Maljamar Area

Maljamar Oil & Gas Co.'s No. 1 Miller, C NW SW Section 23-17-32, is drilling at 3,500 feet in anhydrite.

Eddy County

In the Maljamar area in Eddy County Grayburg Oil Co.'s No. 6 Burch, C SE NE Section 19-17-30, was completed at 3,195 feet for 365 bbls. of oil and 1,500,000 feet of gas the first 24 hours. The pay was at 3,180-95 feet. The 3-¼-inch was set at 3,150 feet and the elevation is 3,633 feet. It is an east offset to the same company's No. 6 Burch, which made 510 bbls. initial.

Skelly Oil Co.'s No. 1 Dow, C SW SE Section 15-17-31, was completed at 3,788 feet and pumped 40 bbls. the first 24 hours after being shot with 20 and 40 quarts at 3,622-91 feet and treated with 2,000 gallons of acid.

Premier Petroleum Co.'s No. 1-E Dexter, C NW NE Section 30-17-30, is drilling at 2,625 feet in lime and had an increase in gas at 2,512-15 feet.

In the Artesia area Rampo Oil Co.'s No. 1 State, NE SE Section 32-17-28, formerly Wilson and others, is drilling at 440 feet in red beds. Tignor, Etz & Keyes' No. 1 State, C NE NW Section 15-17-28, is shut down at 1,750 feet in sandy lime, and Red Lake Oil Co.'s No. 4 State, NW cor. SW Section 22-17-28, topped the red sand at 1,240 feet and is shut down in anhydrite at 1,275 feet. Flynn, Welch & Yates' No. 1 Yates, C SE NE Section 6-20-27, is rigging up, and R. D. Compton's No. 6 Mann, NW SW NE Section 4-18-27, is drilling at 571 feet in lime. Fred Brainard's No. 1 Brainard, NW NE Section 2-17-28, is drilling in sand at 1,606 feet. It had a show of gas at 1,540-47 feet, an increase at 1,553-57 feet and another increase at 1,557-59 feet and a show of oil at 1,587-91 feet.

Barnsdall Oil Corp.'s No. 2 Dodd, C NE SE Section 22-17-29, is drilling at 1,672 feet in anhydrite. Stovall & Marshall's No. 2 Rose, C NE SW Section 28-24-27, Pecos River district, set the 8¼-inch at 1,352 feet with 300 sacks and is drilling at 1,435 feet in anhydrite.

Getty Oil Co.'s No. 7 Dooley, SW cor. NW Section 24-20-29, Getty area, is installing blowout preventer at 3,742 feet in lime. George Etz and others' No. 1 State, C NE NW Section 36-20-28, is drilling at 657 feet in red beds, and Dooley and others' No. 1 Commerce Trust, NW NE SW Section 8-20-27, is drilling at 381 feet in shale. Coronada Exploration Co.'s No. 1 Anderson, C NE NW Section 13-20-23, Seven Rivers district, is waiting on machine at 1,462 feet.

Otero County

Flynn, Welch & Yates' No. 1 Donahue, C NW NE Section 28-24-15, set the 10-inch on bottom at 412 feet with 15 sacks.

San Juan County

Continental Oil Co.'s No. 43, NW SE NW Section 12-29-19, Rattlesnake Pool, drilled near a fault in the southern part of the field, has 650 feet of water in the hole at a total depth of 990 feet.

COLORADO

Adams County

Riddle Petroleum Co.'s No. 1 Baxter, C SW Section 2-3s-66, Derby district, is waiting on water well which is down 910 feet and unable to get on bottom on account of heaving shale.

Boulder County

Leslie R. Steele and others' No. 1 Maxwell, SW NE NW Section 24-1n-71, Boulder district, is drilling at 574 feet.

Moffat County

Stanolind Oil & Gas Co.'s No. 28-X Parkinson, NE SW SW Section 22-4n-92, Iles Dome, was completed at 3,420 feet, 35 feet in the Sundance, and flowed 65 bbls. an hour through the 2-inch tubing, or at the rate of 1,560 bbls. daily. Same company's No. 4-SD Shaw, NE NW NE Section 27-4-92, is coring at 3,432 feet, and its No. 16-SD Shaw, SE NW NW Section 27-4n-92, is building derrick.

Park County

South Park Oil Co.'s No. 1 State, SE cor. SW Section 16-11-75, Hartsel district, is bottomed at 1,415 feet and underreaming the 8¼-inch at 1,150 feet.

Prowers County

Trojan Oil & Gas Co.'s No. 1 Lotus Oil, NW NE NE Section 15-23-46, Lamar district, is waiting for drilling line at 5,224 feet.

Seismograph Operations

The Ohio Oil Co.'s seismograph party which has been operating out of Beatrice, Neb., has moved to Eads, in Kiowa County, and is shooting in Township 18s, Range 50w. The Colorado Geophysical Corp. is shooting in Township 3, 4 and 5s, Range 47 and 48w. Its headquarters are at Stratton. The Indian Territory Illuminating Oil Co. is shooting between Stratton and Flagler in Kit Carson County and the same company has an outfit coredrilling south of Eads in Kiowa County.

WYOMING

Albany County

The California Co.'s No. 1 Holst, NE SE SE Section 13-17-77, Quealy Dome, which last week was reported swabbing 20 bbls. an hour from 5 feet of the Dakota sand at 3,236 feet, is rigging up for a 10-day pumping test. It is erecting tankage with a capacity of 5,000 bbls. The oil tests 34.9 gravity.

Big Horn County

Peay Oil Co.'s No. 1 Denio, Tract 43-C, Section 15-55-97, in a fault block south of the Byron Dome, which filled a 250-bbl. tank in 16 hours from the Torchlight sand at 3,225 feet, 6 inches in the sand, set the 8¼-inch at 3,216 feet. It averaged 200 bbls. a day for five days. The gas had a pressure of 325 pounds.

Ohio Oil Co.'s No. 2 Sidon Canal, C SW SW Section 24-56-97, is drilling at 1,754 feet and its No. 1 Till, C SE SW Section 24-56-97, is digging sump and rigging up rotary.

California Exploration Co.'s No. 1 Government, C SW SW Section 4-54-94, Spence Dome, which had a hole full of water in the Madison at 1,250 feet, was drilled to 1,500 feet and is plugging back to test a show of oil at 930-1,040 feet which was estimated at 20 bbls. a day on the way down.

Peter Evanoff and others' No. 1 McAllister, Lot 40, Section 2-55-97, South Garland, is rigged and ready to spud.

Carbon County

Ohio Oil Co.'s No. 1 Kyle, NE SE NE

Section 26-21-79, Medicine Bow district, which showed for 36,000,000 feet of gas in the Sundance at 5,206 feet, total depth, is coring in shale at 5,230 feet. Earl W. Reeder, Inc.'s No. 1 Whitford, SW SE SE Section 24-20-84, Overland Dome, is drilling at 3,900 feet. Ohio Oil Co.'s No. 10 Harrison & Cooper, NE NW SW Section 35-20-78, Rock Creek Field, is drilling at 2,885 feet in sandy shale.

Converse County

Chadron-Osage Oil Co.'s No. 1 State, SW cor. Section 16-32-69, Shawnee district, is drilling below 400 feet.

Fremont County

Mid-American Oil Co.'s No. 2 Government, C NE SW Section 14-28-92, Sheep Creek, which pumped 110 bbls. the first 24 hours at 2,263 feet, total depth, was treated with 1,000 gallons of acid and is rigging up for a pumping test.

Niobrara County

Ohio Oil Co.'s No. 6 Lamb, C SE SE Section 32-36-65, Lance Creek Field, is drilling at 3,042 feet in shale, and the Argo Oil Co.'s No. 3 Elliott, C NE NE Section 6-35-65, is rigging up rotary. Continental Oil Co.'s No. 1 Apex-3, SW NE SW Section 34-36-65, is waiting on cement at 3,538 feet.

Park County

The Texas Co.'s No. 3 Sonners, C NE NW Section 28-51-100, Oregon Basin Field, is drilling at 2,538 feet. Garland Oil Co.'s No. 2 Government, SE NE NW Section 14-56-98, Garland Dome, is resuming at 2,166 feet.

Sublet County

The Texas Co., through its subsidiary, the California Petroleum Corp., is resuming drilling in the La Barge Field. Its No. 4-K, SW SE SW Section 34-27-113, is drilling at 105 feet with cable tools.

Washakie County

Wyoming Oil & Refining Co.'s No. 1 Frison, NW SW NW Section 14-48-91, Hidden Dome, set the 8¼-inch at 1,420 feet. It had a show of gas in shale at 420 feet and another at 1,298-1,317 feet. It had a show of gas and oil just below the last-named depth.

Weston County

The only active operation in the Osage Field is the Osage Trust Co.'s No. 15-A, NW cor. SE Section 14-46-64, which is drilling at 860 feet.

MONTANA

Glacier County

One completion and two new locations were reported in Cut Bank.

The Texas Co.'s No. 6 Hinkle, NE cor. Section 2-34-6w, pumped 92 bbls. first 24 hours from the pay at 2,768-2,801 feet.

The new locations are Santa Rita Oil & Gas Co.'s No. 1 Government, C NE SW Section 4-32-5w, and its No. 1 McCabe, C NW SW Section 28-33-5w.

Askins' No. 1 Askins, Lot 24, Block 33, Section 12-33-6w, is fishing for pipe at 2,700 feet.

Consolidated Gas Co.'s No. 5 Tribal, Lot 5, Section 3-34-6w, is spudding at 220 feet, and its No. 6 Tribal, C SW SW Section 10-34-6w, topped the Colorado at 640 feet and is running the 10-inch at 660 feet.

Dakota-Montana Oil Co.'s No. 2 Winkler, E NE NW Section 26-35-6w, is drilling at 2,350 feet.

Gardner-Smith's No. 1 Tweedy, NE NE Section 36-33-6w, cemented the 10-inch at 420 feet with 35 sacks.

L. R. Hannah, trustee's No. 1 State, Lot 5, Block 4, Section 12-33-6w, is spudding at 360 feet.

Indian Oil Co.'s No. 2 Winkler, W SW SW Section 23-35-6w, is drilling out cement at 1,240 feet after setting whipstock at 1,210 feet.

Kately-Drumheller's No. 2 Ward, SE NE Section 10-34-6w, is spudding at 100 feet.

Montana Headlight Oil Co.'s No. 5 Yunck, NW NE NW Section 1-34-6w, is drilling at 2,350 feet. Montana Power Gas Co.'s No. 1 Bonnett, C SE NW Section 4-32-5w, is moving in materials, and its No. 1 Highland Unit, NW SE NW Section 27-36-5w, topped the Colorado at 450 feet and set the 10-inch at 470 feet with 50 sacks. Same company's No. 1 Lookhoff, C SW SE Section 28-33-5w, is spudding at 295 feet, and its No. 1 Miller, C NW NW Section 28-33-5w, topped the Colorado at 712 feet and set the 10-inch at 731 feet with 50 sacks.

Nadeau Brothers' No. 4 Van de Mar, C SW NE Section 35-35-6w, is rigging up.

Par Oil Co.'s No. 4 Haines, E SE SE Section 2-34-6w, is drilling at 2,350 feet.

Bruce Radigan's No. 1 Connolly, NW SW NW Section 7-33-5w, is drilling at 2,880 feet.

The Santa Rita Oil & Gas Co.'s No. 1 Ritchie, C NW SW Section 5-33-5w, is drilling at 1,200 feet, and its No. 2 Ritchie, C NE NE Section 6-33-5w, is rigging up. Same company's No. 5 Whetstone, NE SE Section 22-35-6w, topped the Colorado at 485 feet and set the 10-inch at 520 feet with 30 sacks. The Steele Creek Producers, Inc.'s No. 2 Carman, C SW NW Section 19-34-5w, is spudding at 25 feet.

The Texas Co.'s No. 3 Schlag, SE SE Section 26-35-6w, is drilling at 2,539 feet, and its No. 1 Sherbourne Mercantile Co., C NW SW Section 10-34-6w, is drilling at 1,020 feet.

Carbon County

Ohio Oil Co.'s No. 15 Montana Industrial, C NE NE Section 11-7s-21, Dry Creek, set the 15½-inch at 122 feet and is waiting on cement.

Fergus County

S. W. Pennock and others' No. 1 Nordheim, NW NE NE Section 6-21-18, Scharf district, is drilling at 625 feet.

Liberty County

J. H. Hamilton and others' No. 1 Northern Farms, C NE SW Section 10-37-5e, Flat Coulee, is fishing at 2,480 feet for bailer.

Phillips County

Grant Smith and others' No. 4 Phillips, NW SW Section 2-24-23, Bull Creek, is drilling at 225 feet, and Guy Norman's No. 1 Pewitt, NE NW NE Section 20-24-24, Guinn district, is drilling at 500 feet.

Toole County

The Texas Co.'s No. 5 Swears, C SW Section 9-35-2w, Kevin-Sunburst Field, is drilling at 1,560 feet, and A. E. Crumley's No. 5 Shaw, NW SE SW Section 35-36-2w, is drilling at 600 feet.

Canadian Fields

(Continued from Page 93)

ered 4,244 bbls., and Pacalta Oils' No. 1 produced 2,112 bbls.

The gain in the Red Coulee Field was partly due to the return to production of Southern Alberta Exploration Co.'s No. 1, with 529 bbls. for the month. The O'Neil production totaled 402 bbls. and the Vanalta wells produced 1,247 bbls. In the Wainwright field six wells were in production, Onalta Oils' No. 1 ranking first with 321 bbls.

Turner Valley Field

In Section 28-18-2w5, South Turner Valley, Renfrew Royalties' No. 1, Morris & Goodfellow, LSD 3, is below 4,800 feet with further shows of light crude. Potential production is estimated 35 to 40 bbls. Drilling will be continued into the lime, around 5,600 feet. Publix Oil & Gas Co.'s No. 1, LSD 8, is standing in the lime at 5,524 feet and taking production while waiting for a shot.

In the far south end, Union-Freehold Oil Corp.'s No. 1, LSD 8, Section 21-18-2w5, is standing in the lime at 5,610 feet and waiting for new drill pipe.

On the east side, Livingston Syndicate's No. 1, N. LSD 5, Section 34-18-2w5, is below 3,630 feet after getting the cardium sand marker at 3,400 feet. On the south half of the same LSD, Nolan-Hungerford Royalties' No. 1 has resumed from 3,257 feet after some months' shut-down.

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field Petroleums' No. 2, LSD 13, Section 13-20-2w5, will be deepened into the lime from 5,070 feet. It was drilled some years ago after Richfield's No. 1, on the Waite Valley structure, failed to get production. The acreage was subleased from Spooner Oils, Ltd. Richfield's No. 2 had a small crude naphtha recovery from the upper lime, which in March dropped to 93 bbls.

In North Turner Valley, Royalite Oils' No. 26, LSD 5, Section 23-20-3w5, is in the Madison lime below 5,070 feet. It got the Dalhousie sand at 4,590 feet, Kootenay at 4,610 feet and brown sand at 4,650 feet. The Fernie shales were encountered at 4,740 feet, belemnite formation at 4,820 feet and Madison at 4,893 feet. The test is logging somewhat higher than other wells in the North Turner Valley area, and considerably higher than Model Oils' No. 1, only 800 feet to the northwest.

Shareholders of Alberta Pacific Consolidated Oils, Ltd., at their annual meeting at Calgary elected the following directors: Dr. A. B. Singleton, president; T. A. Hornibrook, H. A. Howard, T. M. Carlyle, G. M. Bell, Dr. Wm. Hackney, R. W. Ward, F. E. Spooner.

Shareholders of Mill City Petroleum, Ltd., at their annual meeting at Calgary re-elected: President, W. S. Davidson; secretary, Wm. Kemp; directors, W. S. Henderson, W. D. Ransom.

Imperial Subsidiaries

Foothills Oil & Gas Co., subsidiary of Imperial Oil, Ltd., with a producing well in North Turner Valley, had a discolored naphtha production of 25,882 bbls. in 1934 from which $51,068 was realized. South West Petroleum, Ltd., a Foothills subsidiary with one producing well in Section 8-19-2w5, South Turner Valley, had a production for the year of 1,859 bbls. of naphtha.

Aldersyde Structure

On the Aldersyde structure, east of Turner Valley, Ranchmen Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-28w4, is below 6,305 feet with slightly increased shows of green crude. The oil is somewhat heavier than the light crude in the top of the sand around 6,263 feet. Farther south and west, Globe Royalties' No. 1, LSD 3, Section 2-20-29w4, is working on cellar.

Tests in the Foothills

On the Highwood-Sinclair structure, south of Turner Valley, Maple Leaf Royalties' No. 1 Banner, LSD 6, Section 34-17-3w5, is resuming from 1,018 feet after running casing. It has considerable gas and traces of 45 gravity crude.

West of Turner Valley Field, on the Rickert structure, Paramount Oils' No. 1, LSD 2, Section 28-19-4w5, is at 3,553 feet, reaming and fishing for lost bit.

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On the Moose Dome structure, northwest of Turner Valley, E. B. Clarke and associates of Vancouver, British Columbia, will resume development work on the Pilling acreage. Moose Oils' No. 1, LSD 16, Section 29-22-6w5, is at 2,835 feet with good gas flows from the Madison and Devonian horizons, and tools at the bottom of the hole. It will likely be put in shape to utilize gas production for a new test. The Clarke interests have secured extensive acreage from the Pilling Syndicate.

In the Forest reserve area west of Olds, Hunter Valley Oil Co. has three crews of 24 men getting No. 1 McLaren in shape to resume from 4,814 feet. Location is in LSD 12, Section 13-31-10w5.

Watson Structure

On the Watson structure, in the southern foothills north and west of Lundbreck, Mar Jon Oil Co.'s No. 3, LSD 3, Section 4-10-2w5, is at 1,485 feet. It got a good show of light crude in the Benton at 1,110 feet and is logging as expected, and close to the Blairmore formation. Farther south, Mar Jon-Maxmont's No. 4, LSD 10, Section 20-9-2w5, is below 2,000 feet and logging satisfactorily. Raven Oils' No. 1, LSD 1, Section 20-9-2w5, is preparing to resume from 1,225 feet.

Watson Oil Co. has been organized by Seattle and Vancouver interests headed by F. D. Lundy to drill on acreage south of Mar Jon Oil Co.'s No. 3 and north of the Mar Jon-Maxmont test. Location will likely be in Section 33-9-2w5. This is the fifth definite location on the Watson structure.

West of the Watson structure, the Quach, a smaller fold named and reported on by E. H. Cunningham Craig, is to be tested by British interests.

Alberta Border Fields

In the Skiff Field, Southern Alberta, Devenish Petroleum's No. 3, Section 27-5-14w4, is swabbing, the crude being sold at the well. Devenish's No. 5, LSD 4, same section, is standing at 630 feet and will likely resume this month.

On the Del Bonita structure, Terminal Oil Co.'s No. 1, NE Section 18-1-21w4, is below 3,100 feet. It got a show of oil in the Milk River sand, an unusual occurrence in tests in the Border area.

On the Cardston structure, Franco Oils' No. 1, LSD 6, Section 5-3-25w4, is below 2,500 feet with a fair show of medium grade crude oil. It will be deepened. Small pockets of gas have been encountered.

Spring Coulee Project

It is expected the Spring Coulee structure in southern Alberta will be tested this season by a Vancouver group associated with the backers of the Mar Jon Oil Co., which has been operating in the South Turner Valley Field and is now drilling on the Watson structure. Some years ago the Spring Coulee structure was tested by Alberta Pacific Cosolidated Oils, Ltd., of Calgary, in conjunction with the Canadian Exploration Co. of Denver. Alberta Pacific's No. 1 LSD 11, Section 15-4-23w4, was abandoned at 6,191 feet after getting the Madison lime at 5,935 feet. It got shows of gas in the Belly River formation at 2,429-2,600 feet, oil in the Colorado at 4,550 feet and below 4,660 feet, both oil and gas in the Blairmore-Kootenay horizons and the lower Ellis, and strong shows of oil in the Madison between 5,936 and 5,954 feet. It is believed a test somewhat higher on structure would get commercial production.

Saskatchewan Drilling

In the Lloydminster Field, western Saskatchewan, Colony Oil & Gas Co.'s No. 1, Section 25-49-27w3, is rigged ready to spud. It will start with 15½-inch hole and is expected to get the gas sand in 60 days.

In the Hudson Bay Junction area, northern Saskatchewan, Trail Blazer Oil & Gas Co.'s No. 1, SW Section 32-44-3w2, is putting outfit in shape to deepen from 610 feet. At this depth the drill was 20 feet in a sand showing heavy crude. Drilling will be carried to 1,000 feet for lighter crude.

Amalgamated Gas & Oils, Ltd., of Winnipeg, is putting down further structure tests. Several tests have shown gas at around 275 feet, and additional drilling equipment is being secured. Two outfits will drill at Kakwa and one at Hudson Bay Junction, about 20 miles north of Kakwa.

Drilling in Ontario

In the Dover Field, Kent County, Ontario, Prairie Oil & Gas Co.'s No. 3 Stephens farm, Lot 2, Front Concession, Dover East Township, finished in the Trenton limestone at 3,287 feet. Some 750 bbls. of high grade crude have been trucked to Oil Springs and the well is estimated good for 75 bbls. a day, with 1,000,000 feet of gas. It has not been shot. In the same field, F. H. Stover & Son's No. 3, Peter Jubenville farm, Lot 3, Front Concession, is about 360 feet in the Trenton limestone, some 10 feet below the break, with a gas flow estimated at 300,000 feet a day. It will likely be shot.

In Moore Township, Lambton County, Patterson Oil Co.'s No. 2, Allen Bruce farm, finished in the shallow sand with a flush production estimated as high as 50 bbls. a day, one of the best completions in Moore Township in many years.

In the Eden Field, Midwal Oil & Gas Co.'s No. 1, Lot 2, Concession 3, North Talbot Road, Middleton Township, Norfolk County, finished dry in the sweet gas sand at 1,400 feet.

NEW USE FOR MAGNET WIRE

One of the large oil companies in Texas has discovered a unique use for magnet wire. The geophysical department handles very high explosives in its field work, and it is imperative that each individual keep in constant communication with his base. Several men report to the same base, and the cost of stringing regular overhead telephone wire would be prohibitive.

As each man starts from the base he straps a 5-pound spool of single cotton enameled bonded magnet wire on his back so it unwinds as he walks. When he reaches his destination he cuts the wire, connects his hand telephone and is in immediate touch with his base.

The wire must be strong in order to withstand the strain; and it must be perfectly insulated to prevent grounding when dragged through mud and water. When the job is finished, each man disconnects his telephone and leaves the wire for connection to the geophones. The total cost of the communication system is negligible. The oil company has purchased more than 600 miles of this kind of wire from one company alone.

A.A.P.G. TO TULSA IN 1936

The executive committee of the American Association of Petroleum Geologists announces through the president of the association, A. Irving Levorsen, that Tulsa has been chosen for the 1936 annual meeting place. This is the fourth time Tulsa has been so honored as the first meeting was held here in 1917. The association again met here in 1921, and again in 1927 when the largest attendance of any meeting was registered, about 1,827 persons.

Mr. Levorsen is chief geologist for the Tide Water Oil Co., with headquarters in Houston, Tex., but formerly lived in Tulsa. He states that the exact dates for the meeting have not been set but it will be held next year, as usual, during March.

JAMES L. THAYER DIES

LONDON, Ontario, May 4.—James L. Thayer, 64, president of Thayers, Ltd., a gasoline marketing concern operating in western Ontario, was found dead in his garage, due to carbon monoxide fumes.

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to sumbit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential.

Questions requiring a discussion of patents, the use of intricate formulas. extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Catalysts Not Commonly Used For Making Gasoline

Are catalysts used in the several oil cracking processes now being operated in the refineries of the United States? Could you furnish a list of catalysts suitable for oil cracking?—A. P. C.

Those substances that act simply by their presence to promote or accelerate a change are not in general use for the ordinary cracking of petroleum oils, as the operation is conducted for the manufacture of gasoline. Much progress has been made during the past year in the preparation of special chemical compounds from the petroleum hydrocarbons, including powerful anesthetics and insecticides. Most of these processes do make use of catalysts.

The best known catalytic process is the one based on the well-known Friedel and Craft reaction of organic chemistry, in which aluminum chloride is the accelerating material. The quantity of aluminum chloride required is reported to vary between 5 and 10 per cent, the reaction starting at a relatively low temperature, about 390° F. In practice the temperature may be carried up to around 1,400° F.

Fuller's earth and hydrosilicates are employed chiefly for action on the material in the vapor phase. One well known method makes use of this form of catalyst for the purification of gasoline. The material may be used over and over again.

Numerous patents have appeared covering the use of the oxides of the rare earths.

An example is one making use of a mixture containing cerium oxide 60 parts, thorium oxide 10 parts, reduced copper 30 parts, and reduced nickel 10 parts. Nickel chloride, with salt, coal, coke or charcoal, is shown in another. One inventor claims high acceleration with mercury vapor in the presence of hydrogen for making a gasoline that requires no further treatment.

Sachanen and Tilicheyev, Boehtlingk, in Chemistry and Technology of Cracking, page 340, make these observations:

"Catalysts are of great importance in the process of hydrogenation because they accelerate the addition of hydrogen. The use of oxides of nickel, cobalt, of colloidal platinum or palladium, of platinum or palladium black, etc., has already been described. The so-called promoters or accelerators which on being added in small quantities to the basic catalyst considerably increase its catalytic action, are of great interest. For example, an addition of 5 per cent of cerium dioxide to osmium increases the activity of the latter almost eight times when used in the hydrogenation of fluorene.

"In the hydrogenation of petroleum products, which always contain sulphur compounds, catalysts which are not sensitive towards sulphur compounds and other catalyst poisons are of particular importance. Molybdenum and its compounds, for example molybdic acid, have been found to be insensitive towards sulphur compounds. Molybdenum can be substituted by vanadium or chromium or their compounds, such as vanadic acid, chromium hydroxide, chromic acid. In certain cases sulphur compounds have been found useful; for example, cobalt sulphide, vanadium sulphide, etc."

In addition to nickel, iron, copper and zinc are favorite metals; zinc chloride, magnesium chloride and lime are in use. The list of materials that are known to act as promoters of chemical action is very large, so those mentioned here are to be considered only as examples.

Gum Producing Substances and the Action of Inhibitors

Is it known what substances are the cause of the formation of gum in gasoline? If any such substances have been separated from gasoline, will you kindly give me their names with the description? What is the theory behind the use of gum inhibitors?—S. D. R.

Very little appears to be known concerning the exact nature of the substances that are the cause of gum formation in gasoline. Two types of compounds are recognized. Those that are responsible for the gum existing in the gasoline as it is made, which is called preformed gum; the other type includes, together with the preformed, the compounds that gradually accumulate while the product is in storage; this is termed potential or final gum.

The deposited gum is a sticky to hard material, a resinous red to black varnish, which appears to have been formed from organic peroxides. The final product seems to consist of aldehydes and ketones.

Experiments have been made in which particular compounds were added to straightrun gasoline that was free from gum. These indicated that aliphatic and cyclic diolefines, or mono-olefines attached to a benzene ring, produced the largest quantities of gum.

The composition of the gummy material changes with conditions and time. Oxidation in direct sunlight and air causes the formation of a gum containing peroxides but after long standing the percentage of acids increase, accompanied with formation of aldehydes and ketones or related compounds.

Gum inhibitors should retard oxidation. Small quantities of preformed gum seem to accelerate the reactions that are the cause of larger deposits; the potential gum. The inhibitor acts to kill, or at least appreciably reduce, the catalytic action of the preformed gums. It is known that once gum deposition starts it proceeds with great rapidity. The inhibitor is intended to prevent the starting of the increase of peroxides which result in gum. References: G. T. Brooks, Ind. Eng. Chem., 18, 1,198, 1926. Flood, Headky and Edgar, Ind. Eng. Chem., 25, 1,234, 1933.

Paraffin Wax Production and Its Use in the Industries

Kindly let me know what is the consumption of wax in the United States. What industries use crude, semirefined and fully refined wax? —W. R.

The total output of wax by the refineries of the United States is 136,136,000 pounds per year. This includes all grades of paraffin wax used in a multitude of different ways in numerous industries.

The crude, or low melting point grades, are used in the manufacture of matches, impregnating lumber, insulating, preservative for coating metals, preparation of polishes, in road work as a dust palliative, as an illuminant in especially constructed lamps, for water-proofing paper, textiles, wood and leather.

The semi-refined and fully refined grades of wax are consumed in large quantities in the manufacture of candles and waxed cardboard, extensively used for making containers for butter, candy and many foods. Chewing gum requires refined wax.

Waxed paper, largely used for protecting food, must be made from fully refined wax, free from odor and taste. In an address before the Institution of Petroleum Technologists, December 11, 1934, P. G. Higgs stated:

The use of paraffin wax as a proofing agent is by no means restricted to the treatment of paper. Many kinds of wooden packages—e.g., butter kiers and beer barrels—are commonly brushed or sprayed internally with wax in order to prevent tinting of the contents by the wood and loss in weight during storage. Roofing shingles and other wooden articles to be exposed outdoors are frequently waxed by impregnation. The wax is also used in the manufacture of chrome-tanned leather and in admixture with fats for waterproofing and fulling sole-leather and belting; it has been applied to some extent to the preservation of urban stone-work, but opinion is divided as to the effectiveness of such processes.

Certain foodstuffs which must maintain their quality during export or prolonged storage may be waxed directly. In the California fruit-packing industry citrus fruits are coated with a very thin film either by rubbing between blocks of paraffin wax or more frequently nowadays by spraying with wax followed by brush polishing. This treatment greatly retards shrinkage and inhibits mould formation.

Certain kinds of Continental and Colonial cheese and the small varieties which cannot be bandaged in the ordinary way are coated by dipping in the molten wax in order to prevent loss in weight and to retain the moisture necessary for their proper ripening.

Large quantities of paraffin wax are used in admixture with other materials in compounds for sealing dry batteries, etc., and for filling cable junction and terminal boxes. It is used alone as a filling for instrument transformers and as an impregnant for the insulation of inductance coils, windings, and cables of all sizes.

In many cases paraffin wax is used simply for waterproofing other forms of insulation.

Paraffin wax of high melting point is usually selected for electrical purposes in view of the high working temperatures which it must frequently meet without melting out of the apparatus. The electrical properties of wax vary rapidly and somewhat irregularly with rising temperature as the melting point is approached. This behavior is undesirable in certain instruments in which invariability is important, such as condensers for radio frequency circuits. If high setting point wax is used, its average working temperatures will probably be well below that at which extreme changes in resistance and dielectric properties begin to occur.

All grades of wax are used in the manufacture of paste and liquid polishes, but the finest preparations require the higher melting point product, 130° F. and above.

High grade wax enters into several processes for the waterproofing of clothing of all sorts, including men's suits and hats.

Water Tolerance Specification of Aviation Fuel; Purpose, Test

Specifications for aviation fuels mention a water tolerance of 2 ml. What is the meaning of this and how is the required test made?—A. E. W.

Water will destroy the stability of certain blended motor fuels because of the difference of the several components in their affinity for water. Some carbon compounds that make very good fuels are soluble in water, while gasoline is not, so the addition of water to a motor fuel blend containing such a compound would result in destroying the uniformity of the mixture. It is also true that certain substances that are soluble in water will absorb water from the atmosphere and in time this property will result in the bad performance of any blend containing them.

The United States Air Corps Specification No. Y. 3,557 comments as follows:

"The requirement for a water tolerance test is due to the extensive use of water displacement fuel storage systems in Air Corps activities. Fuels containing constituents which are water soluble and will separate and go into solution in the displacement water, are obviously unsuitable for present Air Corps use. Fuels which will absorb any considerable amount of water without separation have not been investigated completely enough to warrant their present use by the Air Corps."

The test method is:

"Water Tolerances—Eighty ml. of the finished shall be shaken in a glass stoppered graduate with 20 ml. of distilled water at room temperature. On settling after shaking, the volume of the aqueous layer shall not have increased nor decreased by more than 2 ml."

PERSONAL PARAGRAPHS

JOHN H. MACK, vice president, Fargo division, Chrysler Motors, Inc., Detroit, Mich., is on a tour of oil centers in the Southwest.

* * *

J. C. VACQUIN, of the Shell Petroleum Corporation, and MRS. VACQUIN, left New York City May 4 on the French steamer, Champlain, for European points.

* * *

J. H. TRICKEY is in charge of the new office opened by Llano Oil Company, in the Hogan Petroleum Building at Midland, Tex., recently, with W. L. FICKET, geologist.

* * *

D. D. CHRISTNER, chief geologist, and F. D. BALLANTINE, land department, Continental Oil Company, Fort Worth, Tex., were at the company district office in Midland, Tex., last week.

* * *

H. T. ASHTON, general manager of the Lubrite division of the Socony-Vacuum Company, Inc., St. Louis, Mo., has been appointed vice chairman of the Labor Subcommittee, of the Planning and Coordination Committee, to replace BRYAN HOUSTON, resigned.

* * *

A. C. TEMMEL, engineer, National Tube Company, Tulsa, has been transferred to the company's Fort Worth, Tex., office to assume charge of engineering there and E. L. WYCOFF, engineer, formerly in the Fort Worth office, is now in the Bakersfield, Calif., office, in charge of engineering work in that territory.

* * *

CHARLES F. ROESER, of Fort Worth, Tex., was in Chicago last week.

* * *

J. E. BOYDSTUN, purchasing agent, Turman Oil Company, was in Houston, Tex., on company business.

* * *

A. J. A. BELL, of Victoria, British Columbia, is visiting Calgary and nearby oil areas in southern Alberta.

* * *

HAROLD M. WALL, vice president of the Wall Rope Works, Inc., Beverly, N. J., spent the week in Texas on business, visiting Dallas and Houston.

* * *

H. F. CROCKER, president of the Mountain & Gulf Oil Company, has returned to Denver, Colo., after a month's trip to various points in California.

* * *

E. W. WATSON, discoverer of the Watson oil structure in southern Alberta, is recovering from an operation at the Kamloops, British Columbia, hospital.

* * *

M. T. RATHVON, of Casper, Wyo., superintendent of field operations for the Argo Oil Company, was at the company's headquarters in Denver, Colo., this week.

* * *

CHARLES ALCORN, independent producer of Wichita Falls, Tex., was a business visitor in Fort Worth, Tex., during the week. Mr. Alcorn was formerly division engineer for the Shell Petroleum Corporation at Dallas, Tex.

* * *

P. E. MAHAFFEY, president, and W. H. GORY, vice president and purchasing agent, of the Happy Belting Company, have returned from a two weeks' business trip in Arkansas, Louisiana and Texas.

ED BACON, crude oil purchasing department, Shell Petroleum Corporation, Tulsa, was a visitor to Wichita, Kans., last week.

* * *

HARRY C. MOREHOUSE and L. A. RAWSON have been elected vice presidents of the Emsco Derrick & Equipment Company.

* * *

W. S. S. RODGERS, of New York, president of the Texas Company, is on an inspection tour of the company's properties on the Gulf Coast.

* * *

FREEMAN W. BURFORD, president of the East Texas Refining Company, with headquarters at Dallas, Tex., spent several days in Houston, Tex., the past week.

* * *

M. F. WHITEHILL, of Washington, Pa., was a visitor in Beaverton, Gladwin Township, Michigan, where his second test in a prospective new Michigan field is nearing completion.

* * *

THEODORE A. MORGAN is now director of conservation of the Public Utilities Corporation for Kansas, the title having been changed from state proration umpire by a recent act of the Kansas legislature.

* * *

PAUL TORREY, geologist, of Bradford, Pa., and MISS HAZEL THOMAS, of Pittsburgh, Pa., were united in marriage in Pittsburgh on Friday, May 3. Mr. and Mrs. Torrey are graduates of the University of Pittsburgh.

E. H. PELSTER, office manager, National Tube Company, Tulsa office, has been released from a hospital where he has been confined with an attack of pneumonia.

* * *

A. M. BUTCHER, special representative of the Boston Woven Hose & Rubber Company, has returned from a business trip to California which had extended over two months.

* * *

CAL SHUGERT, Gulf Coast district manager for the Guiberson Corporation, is spending the month of May in Dallas, Tex., working directly out of the headquarters office while recuperating from a slight operation.

* * *

W. J. ROBBINS has been appointed office assistant to R. T. HASLAM, manager of domestic marketing for the Standard Oil Company of New Jersey. He formerly was connected with the lubricating oil sales department.

* * *

R. H. SOPER has been made assistant to the vice president in charge of production for the Standard Oil Company (Indiana) by appointment from PRESIDENT E. G. SEUBERT. Mr. Soper's headquarters will be in Chicago.

* * *

T. G. ROACH, district superintendent for the Humble Oil & Refining Company in the Thompson, Texas, district, has been transferred to the Roanoke district in Louisiana replacing D. W. WOFFORD, who was transferred to the Crowley district.

* * *

W. D. WOOD, of Sim & Dawson, Vancouver, British Columbia, has been visiting the southern Alberta fields.

* * *

BEN ROGERS, land man for the Shell Petroleum Corporation, San Angelo, Tex., is recuperating from a tonsillectomy.

* * *

W. D. AMBROSE, independent operator of Fort Worth, Tex., who is making a tour of the world with his family, is in China.

* * *

L. F. BOOTH, purchasing agent, Selby Oil & Gas Company, spent several days at Gladewater, Tex., on tax work for the company.

* * *

B. H. VAN DER LINDEN, of the Royal Dutch-Shell, accompanied by MRS. VAN DER LINDEN, spent last week in Los Angeles, Calif.

* * *

L. D. HILTON, representing Cameron Iron Works, Inc., of Houston, Tex., is spending some time in the Mid-Continent Field calling on the trade.

* * *

R. DeCHICCHIS, consulting geologist of Midland, Tex., was married to MISS MILDRED BROWN of that city, at Carlsbad, N. Mex., on April 25.

* * *

JOE H. THOMPSON, national director of the Conoco Travel Bureau, addressed the Denver (Colo.) Real Estate Exchange in a talk on the tourist traffic this year which, he said, will trend toward Colorado and the mountain area.

* * *

THOMAS A. MILLER, assistant tax commissioner of the Pure Oil Company, Fort Worth, Tex., has recently received a promotion to the grade of captain of infantry, Officers Reserve Corps, U. S. Army.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

May 9, 1910

The biggest deal ever to have been transacted in the California oil field was just concluded when the Kern River Oil Fields of California, Ltd., bought the Imperial Oil Co.'s 480 acres and the Thirty Three Oil Co.'s 160 acres, or all of Section 33-28-28, Kern River Field. The price paid is rumored to have been $7,500,000. There are 126 wells on the property.

After 49 days of continuous flowing the Lake View gusher in California is still producing nearly 50,000 bbls. per day.

John J. Conry and Miss Anna Shay will be married in Toledo, tomorrow, May 10, and will leave on May 21 for Rumania where Mr. Conry will be assistant general manager of the Standard Oil Co.'s Rumanian division under E. J. Sadler. Both Mr. Sadler and Mr. Conry were former Prairie Oil & Gas Co. employes in the Nowata district in Oklahoma.

20 Years Ago

May 9, 1915

The Black Panther Oil Co., the Federal Court says, is the legal owner of the famous Barney Thlocco lease of 160 acres in the Cushing Field.

American drillers in Rumania receive from $200 to $250 per month.

The Prairie Oil & Gas Co. is producing 34,000 bbls. and McMan Oil Co. 33,000 bbls. per day in the Cushing Field, out of a total of 232,000 bbls. There are 33 producing companies and firms in the field. Gunsburg & Forman produce 15,000 bbls.; B. B. Jones, 15,800 bbls.; White & Sinclair, 21,000 bbls.; Producers Oil Co. (the Texas Co.), 15,000 bbls.

Jim Cremin, Tulsa drilling contractor, drilled a test in Cuba on which the rig timbers were built of solid mahogany.

Sarah Rector, 15-year-old Negro girl, owner of the royalty on one of Cushing's richest properties, is being educated under the guidance of the noted Booker T. Washington.

10 Years Ago

May 7, 1925

J. H. Jenkins, head of the Tidal Oil Co.'s geological department in Texas, has been made a vice president of the company.

There are 258 wildcat wells drilling in Texas in 95 counties. The deepest hole being drilled is down 5,000 feet.

Government geologists estimate that after the Bradford sand in McKean County, Pennsylvania, and Cattaraugus County, New York, has been flooded there will be 30,000 bbls. of oil per acre left in the sand.

WILLIAM BALLS, who has been drilling near Dundas, Ontario, for the Rockton Oil & Gas Company, returned to his home in Petrolia, Ontario, recently.

* * *

H. L. PHILLIPS, president of the Sinclair Prairie Oil Company, with headquarters at Tulsa, was a visitor to the company's offices at Houston, Tex., the past week.

* * *

E. W. McGREW, tax attorney for the Sinclair Refining Company, with headquarters at New York, is spending a few days at the company's offices at Houston, Tex.

* * *

H. B. FELL, of Tulsa, executive vice president of the Independent Petroleum Association of America, addressed a meeting of oil men at Artesia, N. Mex., last week.

* * *

WALTER F. THORN, managing director of Franco Oils, Ltd., which is drilling near Cardston, Alberta, has spent a couple of weeks in Winnipeg on business for his company.

* * *

W. S. HILL, land man and scout for the Continental Oil Company, has been transferred from Sayre, Okla., to Lake Charles, La. He formerly was located in the East Texas district.

* * *

JACK FARRY, of the Associated Oil Company, was in Los Angeles, Calif., last week in connection with company business, but has returned to the home office at San Francisco.

* * *

E. M. CRAIG, president and managing director of the Mar Jon Oil Company, who has been in Alberta in connection with development work on the Watson structure, has returned to British Columbia.

* * *

F. ROSS BELL, who has been with the Texas Pacific Coal & Oil Company at Thurber and Fort Worth, Tex., during the past 16 years, has resigned. Mr. Bell held positions as chief clerk of production and assistant general auditor.

* * *

T. O. CARTER, geologist, Continental Oil Company, Fort Worth, Tex., has been in Permian Basin territory on company business recently.

* * *

HENRY HELLINGHAUSEN, purchasing agent, Carter Oil Company, has completed an annual inspection of company properties in the southeastern part Oklahoma.

* * *

C. P. ERNI and OKEY WHEELER, Michigan representatives of the Ohio Producing & Refining Company, have been transferred to the East Ohio Gas Company at Cleveland, Ohio, since the Ohio Producing company's holdings in Michigan have been taken over by the Carter Oil Company, which is starting a development program in Michigan.

* * *

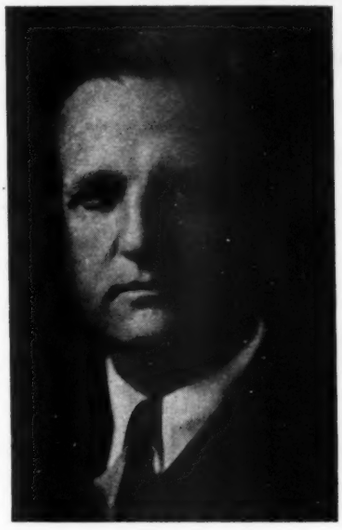
N. W. PICKERING, president of Farrel-Birmingham Company, Inc., Ansonia, Conn., and Buffalo, N. Y., has sailed on the Britannic for a two months' trip combining business with vacation. Mr. Pickering planned to see the company's representatives in England, France, Sweden and Norway, and to visit Germany and Italy. MRS. PICKERING accompanied her husband to England to visit relatives. They expect to return home late in June.

* * *

A. J. O'LEARY has been appointed assistant to general manager of sales at Lukens Steel Company, Coatesville, Pa. Prior to joining the Lukens organization in 1916, he was with the Pennsylvania Railroad and Alan Wood Steel Company. Mr. O'Leary spent five years in the mills and mill service departments at Lukens before he was transferred to the sales department, where he served sinc 1931, until his recent appointment.

Cactus Is This Oil Executive's Hobby

With some folks it's stamps, gold fish, first editions, or beer steins. With R. E. Collom, vice president of the Continental Oil Company, in charge of production, drilling, lands and exploration west of the Rocky Mountains, it's cactus. Of the 1,000 or so known species Mr. Collom already has collected specimens of almost 100 and he zestfully adds new ones at each opportunity.



R. E. COLLOM

Mr. Collom was assistant to President Dan Moran, in charge of exploration, when elected to his present office. In addition to his duties in California he serves as chairman of the company's exploration committee. His headquarters are in Los Angeles.

Mr. Collom's boyhood was passed in Golden and Denver, Colo. Following two years at the Colorado School of Mines he went to Leland Stanford University, where he graduated as a mining engineer in 1906. His first job took him to the Nevada desert. There he spent 18 months in mining and mine surveying. He began his career in the oil business in the Coalinga, California, fields with the Esperanza Oil & Gas Company. He was employed later by the Independent Oil Producers Agency and the Producers Transportation Company, pipe line subsidiary of the Union Oil Company of California, and in October, 1915, he joined the California State Mining Bureau as petroleum engineer at Taft, Calif.

Soon Mr. Collom became deputy supervisor of the oil and gas division of the State Mining Bureau, and then chief deputy. A year later he joined the U. S. Bureau of Mines as petroleum technologist, and in another year returned to California as state oil and gas supervisor. In 1923 Mr. Collom was employed by the Coast Land Company, a subsidiary of the former Marland Oil Company, as chief geologist, and at the time of the Continental-Marland merger in 1929, he was executive vice president of the Marland Oil Company of California.

Following the merger Mr. Collom became manager of the California division of Continental and later was moved to Ponca City, Okla., as assistant to the president. Mr. Collom married Miss Yotta Florence Erhardt, of San Jose, Calif. They have three children.

W. S. WALDEN, chairman of the board of the Standard-Vacuum Oil Company, returned to the United States last week from a several months' trip to points in the Far East. P. W. PARKER, president of the company, is en route home from the Orient.

* * *

F. GODBER, executive of the Royal Dutch-Shell interests, arrived in New York City last week from the Orient where he spent several weeks in connection with the negotiations between the Japanese government and foreign oil companies operating in that country.

* * *

A. N. LUCIE-SMITH, exploitation engineer of the Carribean Petroleum Company, a subsidiary company of the Shell Petroleum Corporation, with headquarters at Maracaibo, Venezuela, visited Shell Petroleum Corporation divisional headquarters at Iowa, La., the past week.

* * *

J. B. GRAHAM, superintendent of field work, National Tube Company, Pittsburgh, Pa., has recently returned from a trip through California oil fields and will spend some time in Mid-Continent fields, also visiting company offices at Tulsa, Fort Worth and Dallas, Tex.

* * *

H. R. SHIDEL, formerly district manager, Eagle-Picher Lead Company, Kansas City, Mo., has been transferred to the insulation division of the company at Cincinnati, Ohio. S. C. KRAFT, succeeds him at Kansas City. MARVIN A. SMITH has been transferred from the Tulsa office of the Eagle-Picher company to Dallas, Tex., and is succeeded here by EDGAR T. JACKSON.

A. G. LEVY, petroleum engineer for the Texas Company at Houston, Tex., has been transferred to Port Lavaca district, where the company is carrying on an extensive development program.

* * *

L. M. DEUTSCH, formerly representative in the East Texas district, and then in the North Oklahoma district, with headquarters at Tulsa, for the Happy Belting Company, has been transferred to Pampa, Tex., in the Panhandle district.

* * *

RUSH M. BLODGET, general manager, Oil Producers Agency, Los Angeles, Calif., spoke before the May 7 meeting of the Los Angeles Basin Chapter of the American Petroleum Institute, on pending California legislative measures.

* * *

M. H. GOODE, independent oil operator and former vice president of the Marland Oil Company (now Continental Oil Company), has joined the Rancho Oil Company, which is owned and operated by the Josey interests.

* * *

BOB VIOLETT, formerly attorney for the old Independent Oil & Gas Company, and Landreth Production Company, Fort Worth, Tex., but now an independent operator and oil attorney, is at home with a broken leg, sustained in a fall at the Fort Worth Boat Club.

* * *

R. T. COLLIER, southern California manager of the Shell Oil Company, drove to San Diego last week to inspect the location of the Shell's building at the California Pacific International Exposition but has returned to his office in the Shell Building in Los Angeles, Calif.

* * *

FRANK H. VIZETELLY, lexicographer, says in his "What's the Name, Please?" column in Literary Digest, May 4, "Lahee—petroleum geologist—not lay'ee, as you might think, but lahee." FREDERIC H. LAHEE is a past president of the American Association of Petroleum Geologists.

* * *

E. R. WOODWARD, technical advisor of the Barrett Company, of New York City, has recently been in the Mid-Continent on company business.

* * *

C. C. SOWERBY, of the Houston, Tex., office of Vortox Manufacturing Company, is spending considerable time in the Mid-Continent Field because of the number of engines that are down due to the effects of the dust storms.

* * *

ED ROÉDEL, formerly agent at Vernon, Calif., for the Associated Oil Company, has been appointed supervisor of sales of the entire southern California division extending from Santa Barbara in the north to San Diego in the south.

* * *

V. R. GARFIAS, of the foreign department of Henry L. Doherty & Company, last week was elected president of the Mexican Chamber of Commerce of the United States. The chamber has its headquarters in New York City. R. OGARRIO, vice president of the Texas Company, was elected a vice president of the chamber. Both Messrs. Garfias and Ogarrio have spent considerable time in Mexico in connection with oil operations.

* * *

G. S. DILLE, of the geological staff of the Texas Company's Kansas-Oklahoma-Kentucky division, is the new president of the Tulsa Stratigraphic Society. He succeeds ROBERT M. WHITESIDE of the Shell Petroleum Corporation. J. A. BORDEN of the Pure Oil Company is the new vice president. He was formerly secretary-treasurer, and succeeds RONALD CULLEN of the Twin State Oil Company. ED MINNIS of the Tide Water Oil Company is the new secretary-treasurer.

NATURAL GAS DEVELOPMENTS

Text of the New Gas Conservation Law as Enacted by the Texas Legislature

AUSTIN, Tex., May 6.—The essential sections of the gas conservation bill, as approved by Governor Allred, follow:

Sec. 2. (g) The term "sour gas" shall mean any natural gas containing more than one and one-half grains of hydrogen sulphide per 100 cubic feet or more than 30 grains of total sulphur per 100 cubic feet, or gas which in its natural state is found by the commission to be unfit for use in generating light or fuel for domestic purposes.

(h) The term "sweet gas" shall mean all natural gas except "sour gas" and "casinghead gas."

(i) The term "casinghead gas" shall mean any gas and/or vapor indigenous to an oil stratum and produced from such stratum with oil.

(j) The term "natural gasoline" shall apply to gasoline manufactured from casinghead gas or from any natural gas.

Sec. 3. The production, transportation or use of natural gas in such manner, in such amount, or under such conditions as to constitute waste is hereby declared to be unlawful and is prohibited. The term "waste" among other things shall specifically include:

Waste Defined

(a) The operation of any oil well, or wells with an inefficient gas-oil ratio.

(b) The drowning with water of any stratum or part thereof capable of producing gas in paying quantities.

(c) Underground waste or loss however caused and whether or not defined in other subdivisions hereof.

(d) Permitting any natural gas well to burn wastefully.

(e) The creation of unnecessary fire hazards.

(f) Physical waste or loss incident to, or resulting from so drilling, equipping or operating well or wells as to reduce or tend to reduce the ultimate recovery of natural gas from any pool.

(g) The escape into the open air, from a well producing both oil and gas, of natural gas in excess of the amount which is necessary in the efficient drilling or operation of the well.

(h) The production of natural gas in excess of transportation or market facilities, or reasonable market demand for the type of gas produced.

(i) The use of natural gas for the manufacture of carbon black without first having extracted the natural gasoline content from such gas.

(j) The use of sweet gas produced from a gas well for the manufacture of carbon black.

(k) Permitting any natural gas produced from a gas well to escape into the air before or after such gas has been processed for its gasoline content.

(l) The production of natural gas from a well producing oil from a stratum other than that in which the oil is found, unless such gas is produced in a separate string of casing from that in which the oil is produced.

(m) The production of more than 100,000 cubic feet of gas to each barrel of crude petroleum oil unless such gas is put to one or more of the uses authorized for the type of such gas so produced under allocations made by the commission.

Sec. 4. (a) If oil and/or gas be produced through different strings of casing set in the same well bore, the inner string through which oil and/or gas be produced shall be regarded as one well, and each successive additional string of casing through which oil and/or gas shall be produced, from a different producing horizon, the others producing through the same well bore, shall be regarded as another well.

(b) No person in possession of or operating any oil well shall produce from such well natural gas found in a horizon productive of natural gas only.

Sec. 5. The commission is given authority to fix and determine the gas-oil ratio of all oil wells in this state, but nothing in this act shall be construed to authorize the limitation of the production of marginal wells, as such marginal wells are defined, below the amount fixed by statute. If any restriction imposed by the commission upon the production of oil from any oil well operates to increase the gas-oil ratio of such well so as to then classify it as a gas well under the provisions of this article, such well shall be deemed to be an oil well nevertheless.

Sec. 6. The commission shall make and enforce rules, regulations, or orders for the conservation of natural gas, to prevent the waste thereof, and otherwise to accomplish the purposes of this article, including rules, regulations, or orders for the following purposes:

(1) To prevent the waste, as hereinbefore defined, of natural gas in drilling and producing operations and in the piping and distribution thereof.

(2) To require dry or abandoned wells to be plugged in such way as to confine natural gas, and water in the strata in which they are found and to prevent them from escaping into other strata.

(3) For the drilling of wells and preserving a record thereof.

(4) To require wells to be drilled and operated in such manner as to prevent injury to adjoining property.

(5) To prevent natural gas and water from escaping from the strata in which they are found into other strata.

(6) To require records to be kept and reports made.

(7) To provide for the issuance of permits, and other evidences of permission when the issuance of such permits, or permission is necessary or incident to the enforcement of its blanket grant of authority to make any rules necessary to effectuate the law.

Utilization of Gas

Sec. 7. After the expiration of 10 days from the time of encountering gas in a gas well, no gas from such well shall be permitted to escape into the air, and all gas produced therefrom shall be utilized for the following purposes:

(1) No sweet gas shall be utilized except for:

(a) Light or fuel.

(b) Efficient chemical manufacturing, other than the manufacture of carbon black.

(c) Bona fide introduction of gas into oil, or gas bearing horizon, in order to maintain or increase the rock pressure or otherwise increase the ultimate recovery of oil or gas from such horizon.

(d) The extraction of natural gasoline therefrom when the residue is returned to the horizon from which it is produced.

(2) In addition to the purposes for which sweet gas produced from a gas well may be used, sour gas may be used for efficient chemical manufacturing purposes including the manufacture of carbon black provided it is utilized in a plant producing a recovery of not less than 1 pound of carbon black to each 1,000 cubic feet of gas, and provided further that the gasoline content is removed and saved from such sour gas before the same is utilized for carbon black.

(3) Casinghead gas may be used for any beneficial purpose, which includes the manufacture of natural gasoline.

(4) Any producer of either sweet or sour gas of casinghead gas may use the same as gas lift in the bona fide production of oil where such gas is not used in excess of 10,000 cubic feet per barrel of oil produced; provided that in order to prevent waste in any case where the facts in such case warrant it, the commission may permit the use of additional quantities of gas to lift oil, provided all such gas so used in excess of 10,000 cubic feet for each barrel of oil shall be processed for natural gasoline and the residue burned for carbon black when same is reproduced.

Duties of Commission

Sec. 10. It shall be the duty of the commission to prorate and regulate the daily gas well production from each common reservoir in the manner and method herein set forth. The commission shall prorate and regulate such production for the protection of public and private interests:

(a) In the prevention of waste as "waste" is defined herein.

(b) In the adjustment of correlative rights and opportunities of each owner of gas in a common reservoir to produce and use or sell such gas as permitted in this article.

Sec. 11. The commission shall exercise the authority to accomplish the purpose designated under item (a) of Section 10 when the presence or imminence of waste is supported by a finding based upon the evidence introduced at a hearing to be held as herein provided.

The commission shall exercise the authority to accomplish the purpose designated under item (b) of Section 10 when evidence introduced at a hearing to be held as herein provided will support a finding made by the commission that the aggregate lawful volume of the open flow or daily potential capacity to produce of all gas wells located in a common reservoir, is in excess of the daily reasonable market demand for gas from gas wells that may be produced from such common reservoir, to be utilized as permitted in this article.

Sec. 13. In determining the daily allowable production for each gas well the commission shall take into account the size of the tract segregated with respect to surface position and common ownership upon which such gas well or wells are located; the relation between the daily producing capacity of each gas well and the aggregate daily capacity of all gas wells producing the same kind of gas in the same common reservoir or zone; and all other factors which are pertinent; provided that the commission shall not take into account the size of the tract upon which any gas well or wells are located in excess of the efficient drainage area of such well or wells, producing at 25 per cent of the daily productive capacity, which drainage area shall be determined by the commission. In ascertaining the drainage area of a well, the commission shall take into account such factors as are reflected in the productive capacity of a gas well, including formation pressure, the permeability and porosity of the producing formation, and the well bore's structural position, together with all other factors taken into account by a reasonably prudent operator in determining the drainage area for a gas well.

Sec. 14. It shall be the duty of the commission, after notice and hearing, to ascertain and determine the reasonable market demand for gas from gas wells to be used for light and fuel purposes and for all other lawful purposes to which sweet gas may be put under the terms of this article and by proper order to restrict the production of gas from all gas wells in said field producing such gas to an amount equal to market demand or to an amount which may be produced without waste as otherwise defined; provided, however, the production of such gas shall in any event be restricted to the amount of the reasonable market demand therefor. In such order the commission shall allocate, distribute or apportion the total allowable production from such field among the various gas wells affected by the order on a reasonable basis, and as provided in Section 13. It shall likewise be the duty of the commission to prorate the daily gas well production of sour gas produced from each common reservoir of sour gas in this state. The hearing for such purpose shall be held at the same time as the hearing pertaining to the proration of sweet gas well production. The proration of sour gas well production shall be accomplished according to the manner and method herein provided for the proration of sweet gas well production.

Sec. 15. Nothing contained in this article shall require that the production from any gas well with a daily natural open flow of 200,000 cubic feet of natural gas or more to be restricted to a quantity less than 50,000 cubic feet of natural gas daily; and nothing herein shall require that the production from any gas well with a daily natural open flow of less than 200,000 cubic feet of gas be reduced to a quantity less than 25 per cent of its natural open flow.

Production Limits

In all common reservoirs producing both sweet and sour gas, no gas well shall be permitted to produce in excess of 25 per cent of its daily productive capacity; provided the commission, upon a finding that reservoir conditions require that such percentage be increased to prevent waste, and that such increase will not create a drainage condition as between sweet and sour gas lands, may authorize an increase in such allowable production. Where the allowable production theretofore allocated to any well is more than 15 per cent of its daily producing capacity, and the commission finds that the production of its daily allowable from such well will cause waste due to the intermingling of sweet and sour gas, the commission may order the production from such well restricted to 15 per cent of its daily producing capacity, but this sentence shall not be construed to militate against the right of the commission to fix the allowable production of any well below 15 per cent of its daily producing capacity in carrying out the requirements of Sections 13 and 14 of this act.

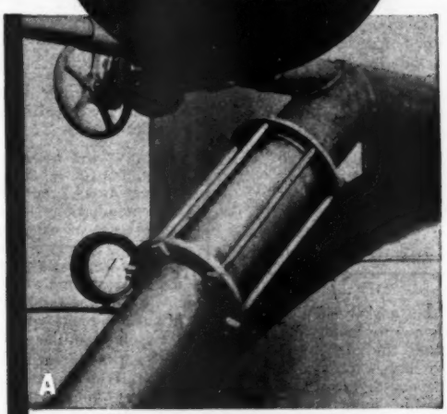
Sec. 16. It shall be unlawful for any person to produce gas from a gas well as herein defined in excess of the daily allowable production in such schedule of allowable production. The rate of production from any gas well shall be deemed to be the average daily rate of production for the month.

Sec. 17. Where gas is produced from one stratum and oil and gas is produced from another stratum in the same well bore, the commission shall take into account the amount of gas produced from

(Continued on Page 104)

Hook-ups FROM WELL TO SEPARATOR

. . Modern Practice CALLS FOR DRESSERS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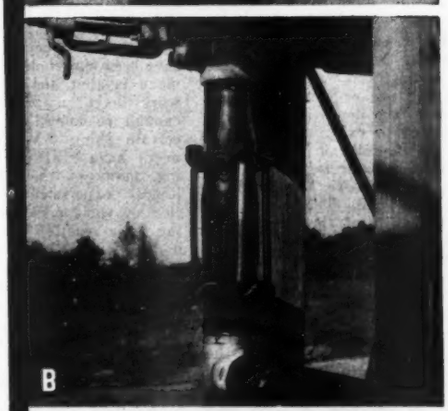
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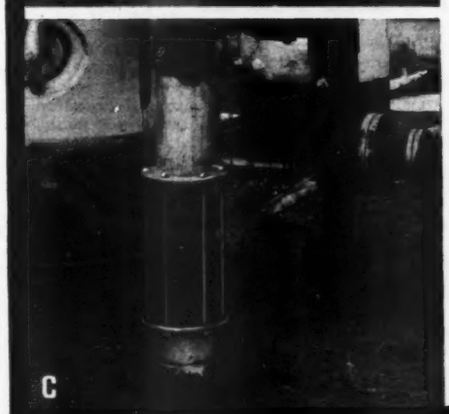
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The same, proved advantages that have made Dresser Couplings standard for gas lines—*permanent tightness, flexibility, simplicity, strength, economy*—are precisely the reasons why Dresser Connections are now so popular for a "thousand-and-one" oil field hook-ups. Are you using Dresser joints for the services recommended below?

1—Christmas-tree hook-ups at the wells.
2—Flow lines running from Christmas trees to separators, and from separators to field storage batteries.
3—Exhaust lines from Diesel drilling engines.
4—Flow lines on top of tank batteries.
5—Bleeder lines from tank batteries.
6—Flow lines from gathering stations to tank storage.
7—Main lines from gathering stations to loading terminals.
8—Flowing plant (i.e. gas lift plant) lines.
9—Natural gasoline plant lines, also manifolds.
10—Refinery lines, subject to expansion and contraction.
11—Natural gas gathering lines of all sizes.
12—Natural gas booster and main line stations.

Your Nearest Supply Store Has Dresser Connections!

A—Dresser Sleeve makes flexible, absolutely tight connection on oil flow line terminating at separator and extending from lower valve on producing well.

B—Dresser Sleeve installed on Christmas-tree end of flow line that runs to separator. Sleeve can be demounted quickly with ratchet wrench.

C—Showing how a Dresser Sleeve is used to make a quick, convenient, flexible connection on high-pressure gas trap at the separator.

S. R. DRESSER MFG. COMPANY, BRADFORD, PA.

In Canada: Dresser Mfg. Co., Ltd., 32 Front St., W., Toronto, Ontario

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depths of sands, types of sands and operations on adjoining or nearby proptries. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Does Water Invariably Cause the Cut Oil Produced by a Well?

Is cut oil as produced by either flowing or pumping always caused by water being in the fluid? I have had many years' production experience, and in this part of the Mid-Continent Field there are wells that make considerable cut oil. One on this lease when flowed freely would go as high as 50 per cent cut oil, or what we call b.s., but there was little, if any, water in the mixture. Could gas or some other element cause this? By plugging back or cementing back I should say they get pipe line oil. The question came up the other day and one man said he never saw any cut oil that was not cut by reason of water in the well, the well making water being responsible for the cut oil. He said that was always the case in a flowing well making b.s., or cut oil.—F. E. I.

In the first place there is a difference between "cut oil" and "b. s." Cut oil, as the name implies, is crude oil that is mixed with some other substance and in normal producing wells this other substance is usually water, salt or fresh. But b. s. is bottom settlings. It is possible to have accumulations in the bottom of a lease tank or a large storage tank that will be free of water, but this is the exception and far from the rule.

Some new wells have produced large quantities of sand and rotary mud along with the oil and this mixture has settled to the bottom of the tanks and could be termed b. s. It would be free of all water because the well was not making any water at the time.

Cut oil and emulsion always contain water even though it may be in very fine globules. Microscopic studies have shown that in permanently emulsified oil the water is present as minute globules ranging in diameter from .004 to .024 mm. Small globules of air and gas also are usually to be observed in the mixture.

Each globlule of water appears to be encased in a film of oil, the average distance between water globules in permanent emulsions being less than one-half their diameter.

Water may be present in association with oil either in the "free" state, or "emulsified." The former term is relative and has no exact significance. It usually is applied to water produced with the oil and separating from the oil when allowed to stand in vessels.

When emulsified the oil and water are so intimately associated that the influence of gravity becomes negligible, even at temperatures considerably above normal. The mixture assumes colloidal properties and the water remains in permanent or semi-permanent suspension.

Emulsions have physical characteristics quite different from the oil of which they are partly composed. The specific gravity is higher because of the added water. The color is variable, commonly dark reddish-brown, though any shade from yellowish-brown to greenish, gray or nearly black may be found. One of the most striking characteristics of emulsion is the high viscosity. All gradations in consistency ranging from thick syrup to semisolid may be found.

By cementing the well from which the cut oil was produced it is probable that bottom water was cut off and the oil was then free of the mixture.

Generally speaking there must be water present with the oil to create what you call cut oil.

If you will recall having seen a well blowing into the atmosphere and discharging a fine spray or mist of oil you know that when the mist hit something solid it was precipitated as crude oil. Under those conditions the oil usually is about as badly "cut" by the gas as is possible, but it does not remain cut after it accumulates on something solid.

It is true that in grinding out a sample in a centrifugal machine quite frequently part of the water will separate and the sample may appear to be clear oil. If tested in the laboratory it is probable that such a residue will yield a trace of water, enough to classify it as emulsion.

Making a Casing Tester for Use in Finding Where Leaks Are

You advise use of a casing tester in finding out where water is leaking in. You advised this in an answer to a question signed G. F. D. in your magazine for April 11, 1935. I wish you would tell more about this tester. Is it necessary to buy one or can it be made by a man handy with tools? Just how is this casing tester operated?—G. A. F.

A tester for casing may be made out of a short section of pipe of smaller diameter than the casing. Plug or in some other way seal one end of this pipe. Then thread the other end to receive one-half of a common flange. Screw this flange onto the pipe and set the other half against its companion, with a gasket made of heavy belting between them. The diameter of this gasket should be a little larger than the inside diameter of the casing. Bolt the gasket in place between the two halves of the flange and form a handle out of strap iron so that the tester can be hung from the dart of a bailer and lowered into the wall.

As the bailer, with the tester suspended from it, is lowered the gasket will scrape against the wall of the casing. By making one or more trial runs into the hole to the depth at which the leak is suspected to exist and by measuring the line carefully it will be possible to lower the tester to a point just beneath the place where the water is running into the well. This water can run down the inside of the casing only as far as the gasket, where it will be diverted into the short piece of pipe, which serves as a bucket. When the bailer and tester are withdrawn this water will be brought to the surface.

By repeating the test several times it will be possible to estimate closely the depth of the leak below the surface and to gauge the rate of flow of water into the well. It is desirable to have this water analyzed by a chemist familiar with oil-field waters with a view of identifying its source, as all oil-field waters have certain characteristics. Knowing something of these characteristics as applied to formations known to exist in the neighborhood of the well being tested it is possible to determine with some degree of certainty the source of the water and then to ascertain the position of this formation from the well log, noting how closely it coincides with the leak in the casing as shown by the tester.

Why Was It Called That?

HELL-ON-WHEELS

When the Union Pacific Railroad was built in the sixties it pushed westward through a region with no white settlements except those of the Mormons and a few miners, with little water, with no timber except the inferior cottonwood and a territory infested with Indians. Because it had no eastern railway connection in the east until 1867 between Omaha and the terminus in Iowa, overland freighting was necessary for all railroad supplies; 100 miles in advance went the surveyors. They were followed by the graders, who in turn were about 100 miles in advance of the track-layers. In this gap worked gangs of bridge and tunnel builders. At the end of the track was set up a temporary terminal town called at the time "Hell-on-Wheels." Cheyenne, Laramie and other towns, later to become familiar to Wyoming oil men, today mark the brief resting places of "Hell-on-Wheels."

Supervision of Engineer Needed in Using Chemicals in Mud

In an article about using chemicals in drilling mud which you published in your department about field problems in the issue of March 21, 1935, you stated that different chemicals can be used with success in dealing with heaving shale, porous formations and other troublesome conditions. You did not say anything about what chemicals should be used in these different cases or whether any special training is necessary. Can any ordinarily intelligent driller do this work?—S. G. T.

A working knowledge of geology and chemistry, of laboratory practice and of the reactions produced by various chemical combinations is essential to the successful use of chemicals in drilling mud. Skilled engineering supervision of the work is imperative. The person undertaking to treat mud or to supervise its treatment must be familiar with drilling operations, at home with mathematical problems and familiar with standard tables.

Chemical treatment of drilling mud will fail of its purpose unless the mud engineer knows the reaction that will take place when he uses certain chemicals and he must know the reason for the reaction. One of the troubles which have been experienced so far in mud treatment is that those entrusted with the work have not understood chemicals enough to know the reasons for doing certain things. While these mud engineers have realized the need of treating, many of them have been working blindly, experimenting with the application of various chemicals and only hoping for a reaction that would accomplish a desired end. It should be an unbreakable rule never to add a thing to the mud until the mud engineer knows definitely what to put in and why. In order that there may be no question concerning what chemicals and admixtures should be used, all formulas should be carefully worked out in the laboratory.

Following this up, a mud engineer must be familiar not only with chemicals and their definite reactions to muds and other chemicals, but he also must know the specific mud he is dealing with and the conditions in the hole. In other words, not only the chemical but the physical characteristics must be thoroughly fixed in the mud engineer's mind before he attempts a detailed treatment of the mud.

This requires that a constant watch be kept of the mud in the hole during the course of drilling. Tests of the mud in every well should be made from three to five times every 24 hours at least and all data such as chemical changes, weight, viscosity, salt content, impervious properties, colloidal strength, etc., should be recorded and studied with care.

Certain chemicals can be added to the mud in the test bucket on the derrick floor or in the tool house and the reactions of these chemicals to the mud noted. With such information obtained day by day, the engineer in charge becomes so familiar with the mud that at the outbreak of any trouble while drilling, no time need be lost in adding the required chemical or chemicals to counteract the trouble conditions. It is declared that on an important well, or any well where particular trouble is probable, an engineer should be assigned to watch the mud carefully and assure himself that it has such characteristics and requisites at all times as are necessary to counteract the threatened trouble.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended May 4 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1934	1934 High	1934 Low	1933 High	1933 Low
64½	48	8,800	64½	61¾	64½	Amerada Corp.	774,875	N.P.	50cQ	4-30-35	$2.00	55⅝	39	47⅝	18½
25⅜	21⅜	18,900	24½	22⅝	23¾	Atlantic Refining	2,673,834	$25	25cQ	3-15-35	1.00	35¼	21½	32½	12⅝
9¼	5⅞	9,900	8¾	8¼	8½	Barnsdall Corp. A	2,248,795	$5	....	5-11-31	....	10	5⅞	11	3
7¼	3⅝	12,000	6⅝	5⅞	6⅜	Columbia Gas & Elec.	11,610,038	N.P.	....	5-15-34	‡ .25	19¼	6⅝	28⅛	9
8¾	6½	18,500	8⅛	7¾	8	Consolidated Oil Corp.	14,218,835	N.P.	14c	10-31-34	.42	14¼	7¼	15⅝	5
20	15⅛	27,600	20	19	19¾	Continental Oil of Delaware	4,738,593	$5	12½c	4-30-35	.50	22¾	15¾	19⅝	4⅛
18⅞	11⅜	3,100	15¾	14⅜	15½	General Asphalt	387,149	$10	....	6-15-32	....	23½	12	27	4⅝
3⅜	1½	1,300	2⅞	2⅝	2⅝	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	5⅝	2½	7⅜	1⅞
1⅞	¾	300	1⅜	1	1	Louisiana Oil Refining	1,302,158	N.P.	....	.....	....	3⅜	¾	4	⅝
12⅞	9½	6,600	12½	11¼	12	Mid-Continent Petroleum	1,857,912	$10	15c	5-15-35	.50	14¾	9⅛	16	3⅝
15⅜	9	1,100	13⅝	13¼	13⅝	National Supply of Delaware	382,591	$25	....	5-15-31	....	21⅛	10	28⅝	4
12	9¼	17,300	11⅜	11	11⅝	Ohio Oil Co.	6,563,107	N.P.	15c	12-15-34	.45	15⅞	8½	17⅝	4⅜
9½	7	700	8½	8¼	8½	Pacific Western Oil	1,000,000	N.P.	40c	11-30-34	.40	9⅜	5½	9½	3
1⅜	⅝	No sales ..	..	..	..	Panhandle P. & R.	198,770	N.P.	....	.....	....	2½	⅝	4¼	⅜
20	13¾	20,100	20	18⅞	20	Phillips Petroleum	4,154,687	N.P.	25c	6-1-35	1.00	20⅜	13⅜	18⅜	4⅝
11¼	6½	14,500	11	10	10⅝	Plymouth Oil Co.	1,014,082	$5	25c	3-30-35	75c & 4% Stk.	16⅜	7¼	17⅝	6⅜
7⅞	5⅞	8,100	7½	6¾	7⅜	Pure Oil	3,038,370	N.P.	....	9-1-30	....	14⅞	6⅛	15⅜	2½
36¼	29½	400	36¼	34½	36¼	Royal Dutch N. Y. shares	432,224	$14	$1.35	7-31-34	1.35	39⅛	28⅜	39¾	17⅝
33⅛	20¾	21,800	33⅛	29½	33⅛	Seaboard Oil of Delaware	1,204,460	N.P.	15eQ†	3-15-35	1.00	38⅜	20¾	43⅜	15
7¾	6½	14,300	7¼	6⅞	7⅛	Shell Union Oil	13,070,625	N.P.	....	6-30-30	....	11½	6	11⅝	4
79¾	64½	3,300	79¾	75¾	78½	Shell Union Oil pfd.	400,000	$100	....	7-1-31	....	89	57	61	28½
18¾	13½	6,500	16½	15¼	16¼	Simms Petroleum	461,698	$10	50c	2-1-35	.55	17⅛	7¼	12⅜	4⅞
9⅝	6½	1,400	9¼	8½	9¼	Skelly Oil	1,008,514	$25	....	12-15-30	....	11½	6	9⅞	3
14⅞	11	44,200	14¼	13⅝	14¼	Socony-Vacuum	31,019,694	$25	15eQ	3-15-35	.60	19⅞	12½	17	6
34⅝	27¾	27,900	34⅝	32¾	34⅝	Standard Oil of California	13,102,900	N.P.	25c	6-15-35	1.00	42⅞	26½	45	19½
26	23	22,100	26	25	26	Standard Oil (Indiana)	15,941,894	$25	25eQ	3-15-35	1.00	32¾	23¼	34	17
32	26½	300	28	26½	28	Standard Oil of Kansas	200,000	$10	50eQ	10-31-34	2.00	41	26	39⅞	12⅝
43⅞	35¾	39,800	43⅞	41¾	43⅞	Standard Oil of New Jersey	25,740,065	$25	50eSA‖	6-15-35	1.25	50½	39¼	47½	22¾
73	60	1,800	73	69⅞	73	Sun Oil	1,733,013	N.P.	25eQ	6-15-35	$1 & 9% Stk.	74¼	51½	59	35
22	16½	16,600	21⅜	20½	21¼	Texas Corp.	9,486,417	$25	25eQ	4-1-35	1.00	29⅜	19⅝	30⅛	10⅜
4¼	4¼	2,700	3¾	3⅝	3⅝	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	....	6½	2½	6½	1⅝
10½	7⅝	8,600	10	9⅜	9⅞	Tide Water Associated	5,618,672	N.P.	....	2-16-31	....	14⅜	8	11¾	3⅛
95½	84	1,700	95½	94¼	95	Tide Water Associated pfd.	666,524	$100	$2§	4-1-35	§8.50	87	64½	65¼	23½
18¾	14¾	11,200	18⅜	17¾	18⅜	Union Oil of California	4,386,070	$25	25eQ	5-10-35	1.00	20½	11½	23⅜	8½
26⅛	20⅞	1,400	24⅞	23¾	24	Union Tank Car Co.	1,200,000	N.P.	30eQ	3-1-35	1.20	25¾	15⅝	22¾	10½
2⅝	1	800	1¾	1⅝	1¾	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	5⅝	2	5½	2

*Ex-dividend. †Plus extras. ‡Payable in preferred stock. §On account of accumulated and current dividends. ‖Dividend 4/75 Mission Corp. paid 3-15-35.

Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended May 4 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1934	1934 High	1934 Low	1933 High	1933 Low
38¾	30½	350	38¾	37½	38⅝	Buckeye Pipe Line Co.	200,000	$50	75cQ	6-15-35	$3.00	38	26	39¾	25
3⅛	1⅝	2,200	2⅞	2⅝	2⅞	Carib Syndicate	799,020	25c	....	.....	....	5½	1½	7⅝	¼
157	115	250	130	128	128	Chesebrough Mfg. Co.	120,000	$25	$1Q†	3-29-35	11.50	150	116	129	71
1½	¾	13,700	1⅜	1¼	1⅜	Cities Service	37,804,394	N.P.	....	6-1-32	....	4¼	1¼	6¼	1½
⅞	¾	1,000	⅞	⅝	⅝	Colon Oil	2,200,000	N.P.	....	.....	....	3¼	½	4	¼
⅞	⅜	400	⅝	½	⅝	Cosden Oil	399,687	$1	....	.....	....	3⅞	½	3⅞	1⅜
14⅞	10	48,800	14⅞	12⅞	14⅞	Creole Petroleum	6,974,356	$5	....	.....	....	14⅜	9⅝	12	4¾
6	4¼	600	6	5⅝	5⅝	Darby Petroleum	509,696	$5	25c	1-25-35	.50	7½	4⅛	8	2⅛
1¼	¾	200	1¼	1¼	1¼	Derby Oil & Refining	263,162	N.P.	....	.....	....	2¼	1	2¾	⅞
38	33¼	100	33½	33¼	33¼	Eureka Pipe Line	50,000	$50	$1Q	5-1-35	4.00	37	30	41¾	20
61	50¼	8,700	61	59	61	Gulf Oil Corp.	4,538,101	$25	....	10-1-31	....	76¾	49¾	62	24
54⅞	44	11,300	54⅞	49¾	54⅞	Humble Oil & Refining (new)	8,923,935	N.P.	25cQ	4-1-35	§1.25	496	33¼	105½	40
17⅛	15⅜	23,400	17⅛	16½	17⅛	Imperial Oil of Canada	26,857,152	N.P.	25cSA†‡	12-1-34	.92½	17⅞	12⅝	15⅞	6½
4½	3⅝	300	4⅜	4⅛	4⅜	Indiana Pipe Line	300,000	$10	15cSA	5-15-35	.35	6⅞	3⅝	8	3⅛
33⅛	28	16,000	33⅛	31	33	International Petroleum	14,247,088	N.P.	56cSA†‡	12-1-34	2.28	33⅜	19⅜	23½	8⅞
8⅛	4⅜	20,500	8⅛	6¾	8	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	....	5	2⅛	2¼	⅜
6¾	3½	500	6	5½	5½	Lion Oil Refining	270,000	N.P.	....	10-27-30	....	6	3⅜	9½	1¼
6¼	4½	3,500	5½	5¼	5¼	Lone Star Gas	5,382,723	N.P.	15c	2-15-35	‖ .16	8⅜	4¼	11⅞	4⅜
5	4⅛	2,100	5	4⅝	5	Mountain Producers	1,682,182	$10	15eQ	4-1-35	.60	5½	4	6½	2½
15¼	11⅜	4,500	15¼	14½	15	National Fuel Gas	3,810,183	N.P.	25eQ	4-15-35	1.00	18⅛	13⅛	20	10
8⅛	6⅝	700	8⅛	7⅝	7⅞	National Transit	509,000	$12.50	35cSA	12-15-34	.75	9½	7	10	5½
2⅝	2	200	2⅛	2⅛	2⅛	New Bradford Oil	1,445,202	$5	10cSA	3-15-35	.20	2½	1⅜	2⅛	½
2⅛	1⅜	No sales ..	..	..	..	New Mexico and Arizona	1,000,000	$1	....	.....	....	2¾	1	1⅞	½
3⅝	3	No sales ..	..	..	..	New York Transit	100,000	$5	15cSO	10-15-34	.30	4¾	3	4⅞	3
5⅝	5¼	100	6	6	6	Northern Pipe Line	120,000	$10	25cSA	1-2-35	.50	7	4⅝	6⅛	4¼
2⅛	1¼	4,400	1½	1⅜	1⅜	Pantepec Oil	1,608,700	N.P.	....	.....	....	2⅝	⅞	3¾	⅛
1¼	1	No sales ..	..	..	..	Ryan Consolidated	296,931	N.P.	....	.....	....	3⅜	⅞	4¼	⅝
7	5⅝	1,600	7	6⅝	7	Salt Creek Producers	1,496,859	$10	20eQ	5-1-35	.80	7⅞	5½	9¼	3½
25⅜	21⅝	2,800	25⅜	24⅞	25	South Penn Oil	1,200,000	$25	30eQ	3-30-35	1.20	26½	17½	22⅛	11
4⅜	3⅞	No sales ..	..	..	..	Southern Pipe Line	100,000	$10	15cSA	3-1-35	.25	5½	3½	6	2⅛
52¼	45¼	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	4-1-35	5.00	47	41	43	24½
21⅝	18	3,500	19	18¾	18⅞	Standard Oil of Kentucky	2,606,983	$10	25cQ†	3-15-35	1.50	18⅜	14⅝	19¼	8⅝
10	7¾	No sales ..	..	..	..	Standard Oil of Nebraska	190,822	$25	....	6-20-34	.50	16⅞	8¼	20½	11
16½	11½	1,400	15½	14¼	15½	Standard Oil of Ohio	753,740	$25	....	1-3-33	....	28½	12¼	41	15½
1¼	1	3,300	1	⅞	1	Sunray Oil	1,610,810	$1	....	4-15-31	....	2	⅞	1½	⅛
6⅞	5	900	5⅞	5½	5⅞	Texon Oil & Land	936,028	N.P.	15eQ	3-29-35	.90	11	4⅜	13¾	6¼

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Includes 50 cents on old $25 par value stock. ‖Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Text of New Texas Gas Conservation Statute

(Continued from Page 100)

the oil stratum in determining the amount of gas that may be produced from the stratum producing gas only and may subtract the amount of the casinghead gas produced from the dry gas that would be allocated to said well if it produced dry gas and may restrict the dry gas production accordingly.

Sec. 18. When unforeseen contingencies increase the demand for gas required by any distributor, transporter or purchaser to an amount in excess of the total allowable production of the wells to which he is connected, such distributor, transporter or purchaser is authorized to increase his take ratably from all such wells in order to supply his demand for gas, provided, however, that notice of such increase and the amount thereof shall be given to the commission within five days; and provided further that the commission, at its next hearing, shall adjust the inequality of withdrawals caused by such increase in fixing the allowable production of the various wells in the common reservoir or zone.

Sec. 19. If the commission finds upon consideration of the evidence introduced at a hearing that either or both of the purposes designated under Section 10 of this article may be more adequately accomplished by zoning a common reservoir, the commission shall zone such common reservoir. If the commission zones such common reservoir, each zone shall be regarded as a separate common reservoir in making allocations of daily allowable production as provided in this article. The commission shall allocate to each zone its just proportion of the market demand for gas from the common reservoir, and shall establish appropriate rules and regulations applicable to each zone and shall have the right to adjust its orders to the practicable conditions which exist and to enter any reasonable order which is necessary to effectuate the purpose of this law. The commission is expressly authorized to segregate a sour gas area from a sweet gas area and shall not be required to restrict the allowable production of the sour gas zone to the same percentages that may be produced from the sweet gas zone.

Sec. 20. In the event the commission finds that the owner of any gas well has failed or refused to utilize or sell the allowable production from his well when such owner has been offered a connection or market for such gas at a reasonable price, such well shall be excluded from consideration in allocating the daily allowable production from the reservoir or zone in which same is located until the owner thereof signifies to the commission his desire to utilize or sell such gas. In all other cases all gas wells shall be taken into account in allocating the allowable production among wells producing the same type of gas.

Sec. 21. In order that land owners and operators that have undeveloped land within a proven natural gas field may secure a market for their natural gas, and in order that the market for natural gas may be more equitably distributed among the various land owners and operators, and in the interest of the conservation and development of natural gas, it is declared to be lawful for any two or more lessors, lessees, operators, or other persons, firms, or corporations owning or controlling production, leases, royalties or other interests in the separate properties of the same producing gas field, with the approval of the attorney general of Texas, to enter into agreements for the purpose of bringing about co-operative development and/or co-operation of all or a part, or parts of such field, or for the purpose of fixing the time, location and manner of drilling and operating wells for the production, storage, marketing or the repressuring of gas, or for the purpose of the equitable distribution of royalty payments. Any such agreement shall bind only the parties thereto, and their successors and assigns of such having knowledge or notice thereof, and shall be enforceable in an action for specific performance.

Sec. 23. Any person violating any of the provisions of this article shall be liable to a penalty not to exceed $1,000 for each offense, and each day's violation shall be a separate offense.

Sec. 25. All laws or parts of laws in conflict with any of the provisions of this act are hereby expressly repealed; provided that on account of the absence of pipe lines necessary to accomplish transportation of gas to carbon black plants from many areas producing sour gas in one or more of the common reservoirs of this state and in as much as many wells producing sweet gas are without market outlet for gas used as light and fuel which will require considerable time to make connection after hearing to determine the allowable production, it is provided that gas from a well producing sour gas only may be utilized as provided in said Article 6008 of the Revised Civil Statutes of 1925 as amended by acts of the First Called Session of the Forty-second Legislature, as amended by acts of the Regular Session, Forty-third Legislature, as aforesaid, until October 1, 1935, and the gas from a well producing sweet gas may be utilized as authorized under said act as amended until August 1, 1935, at which time this article shall be effective as to sweet gas wells; provided, however, that nothing in this act contained shall repeal, modify or impair any of the provisions of House Bill 782, relating to oil and gas conservation, enacted at this session of the Legislature, or shall impair the power of the commission, proceeding under the oil and gas conservation laws of this state, to prevent waste.

California Fields

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started the erection of a new rig in Section 7-22-18. These new locations of the Kettleman North Dome Association and the Standard Oil Co. are being drilled in conformity with the unit plan of development.

Playa Del Rey

It begins to look as though Montebello will give Playa Del Rey a good run for drilling honors before the current year draws to a close as the former may offer much more productive acreage susceptible to development. Playa Del Rey, unless developments up to date are misleading, should not extend much farther east than Manchester Avenue, although this area is still open as no dry holes have definitely limited the productive area. Wells located along the axis may be finished as good producers for another several hundred feet east of Manchester but contours projected from the older section of the field seem to be closing in and if this holds true the eastern extension of the Playa Del Rey Field is relatively limited. The eastern limits of the new extension of the Montebello Field on the other hand are more or less problematical.

During the past week Charles W. Fourl completed his No. 3 Palisades flowing 3,640 bbls. of 22.4 gravity oil and 2,400,000 feet of gas daily from 6,545 feet. This new well was bottomed in schist and completed with a 5¾-inch liner carrying 400 feet of perforated. The Pacific Drilling Corp.'s No. 1 Del Rey, finished last week, subsequently built up to 7,130 bbls. daily and therefore takes rank among the largest wells finished in this field. The allowable production takes these big wells down to a few hundred barrels daily with the result that the potential does not mean much. The Lor-Mar Oil Co. and the Ritelube Oil Co. are expected to complete wells during the next few days.

Mountain View

Two good wells were finished in the Mountain View Field of Kern County this week but drilling operations are declining in this field. The new wells completed during the current week were Shell's No. 1 Bahrenburg and the Hogan Petroleum's No. 5 Porter Day. The former was finished flowing 3,190 bbls. of 34.8 gravity oil and the latter was brought in doing 3,071 bbls. of 35.2 gravity oil. No. 1 Bahrenburg was bottomed at 5,769 feet and No. 5 Porter Day at 5,927 feet.

Hancock Oil Co., which has been experiencing success with its drilling operations in this field, ran into trouble this week when the bit in its No. 6 Miller wound up on the wrong side of the Mountain View fault. As a consequence, the company will be obliged to redrill the hole and attempt to whipstock it back beneath the structure. Hancock's first five wells were good producers but from now on the going will be tougher.

Over in the Edison Field of Kern County, the General Petroleum Corp. finished No. 4 Leddy, pumping 134 bbls. of 15.9 gravity oil after the hole had been plugged back from 2,551 feet to 1,708 feet. The Shell's No. 5 Duff, another new well finished in this field during the current week, was good for 170 bbls. of 24.2 gravity oil after the hole had been plugged back from 3,917 feet to 3,720 feet. This fields does not look as hot as it did several months ago as drilling operations have indicated that the field consists of several independent productive areas.

Mount Poso

Four new wells were finished in the Mount Poso Field of Kern County and the work under way indicates the probable completion of additional potential producers within the next 15 days. The Shell added two new wells to its list of producers in this field by finishing No. 21 Vedder pumping 502 bbls. of 16.5 gravity oil a day and No. 9 Vedder-Rall doing 1,539 bbls. The former was bottomed at 1,823 feet and the latter at 1,937 feet.

The Union Oil Co. opened up the week by completing No. 17 S. & M., pumping 739 bbls. of 16.8 gravity oil a day from 1,958 feet. Following completion of this well, the Union put its No. 22 S. & M. on a production test and this new well showed an initial daily production of 1,340 bbls. of 16.1 gravity oil a day on the beam from 1,865 feet.

The Shell has two additional wells scheduled for completion in this field within the next week and if the Union keeps up its rate of drilling it too should have another well or two ready for production tests in the near future.

In the Midway-Sunset Field of Kern County, the Honolulu Oil Corp. completed its No. 15 in Section 14-32-24 and this new producer was brought in pumping 315 bbls. of 26.5 gravity oil from 2,985 feet after the hole had been completed with a 4¾-inch liner including 32 feet of perforated.

Inglewood

Two good producers were finished in the Inglewood Field of Los Angeles Basin this week and additional completions are expected during the next several weeks. The Standard's No. 31 on Vickers lease No. 1 was good for 1,318 bbls. of 29.9 gravity oil and 340,000 feet of gas at 3,400 feet after the hole had been finished with an 8⅝-inch liner including 755 feet of perforated. The Standard's No. 72 on Los Angeles Investment lease No. 1 was completed flowing 477 bbls. of 30.2 gravity oil and 300,000 feet of gas following completion at 3,650 feet after the hole had been plugged back from 3,909 feet.

In the Long Beach Field, the Cherry Hill Oil Co. completed No. 2 Henshaw at 4,435 feet and this new well was brought in pumping 209 bbls. of 26.6 gravity oil cutting 18.2 per cent. Unless this well cleans up the company may be obliged to undertake correctional work. The depleted condition of this field after nearly 24 years of aggresive development makes it rather difficult to complete a clean well and for this reason operators are resorting more and more to the use of dehydrators in order to meet pipe line requirements which provide that oil offered for sale must show a cut of less than 3 per cent.

The Medal Oil Co.'s No. 1 Signal, which was cleaned out and returned to production this week showed an initial daily production of only 40 bbls. a day from 2,845 feet. The importance of the Universal Consolidated Oil Co.'s new well in the Montebello tended to divert attention from other developments in that field, but the fact remains that the Standard Oil Co. completed No. 77 Baldwin at Montebello and this new well was brought into production pumping 112 bbls. of dirty 25.1 gravity oil daily from 2,825 feet after the hole had been plugged back from 5,395 feet. Corrective work on this well will probably reduce the abnormally high cut. In the Santa Fe Springs Field of Los Angeles Basin, the General Petroleum finished No. 46-B Santa Fe, but this new well was good for only 201 bbls. of 34.6 gravity oil at 4,563 feet after the hole had been finished with a 6⅝-inch liner carrying 449 feet of perforated.

Oklahoma Fields

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of 2,505 feet. It had nothing but salt water.

Jack Kilgore and others abandoned No. 1 Woolridge, SW SW NE Section 15-3n-21w, Jackson County. It drilled into granite at 2,266 feet, total depth.

Louis Sikes completed No. 2-B Sikes, SW NW NW Section 15-1s-8w, Stephens County, a 50-bbl. pumper at 2,105-11 feet.

Equitable Oil & Gas Co.'s No. 1 Baier, SW NW NW Section 21-1s-3e, a Murray County wildcat, was abandoned at 1,250 feet, the contract depth. It penetrated 500 feet of Arbuckle lime from 740 feet downward.

George Pace and others' No. 8 Gilworth A, SW cor. NE NE NW Section 2-2s-8w, Stephens County, is a 15-bbl. pumper at 1,592-1,609 feet.

Schermerhorn Oil Co. abandoned No. 12 Smith-Cruce, NW SW SW Section 5-4s-3w, at 2,314 feet after deepening from 1,215 feet. It was dry.

Shell Petroleum Corp.'s No. 48 Frankline made a 20-bbl. pumper from sand at 932-67 feet and 1,022-1,175 feet.

Mitchell & Kilbourne's No. 6 Burge, SW cor. SE SE SE Section 25-7s-5e, Marshall County, is a 10-bbl. well at 510-29 feet.

George L. Pace's wildcat test in southeastern Garvin County, No. 1 Smith, SW SW NE Section 35-1n-1e, was dry and abandoned at 2,523 feet.

Harry Ables made a location for No. 7 Akers, a twin, 200 feet from north line and 660 feet from east line of NW quarter Section 11-1n-5w, Stephens County. Mid-Texas Petroleum Co. made a location for No. 1 Ward, SW SW SE Section 19-1n-3w, Garvin County.

Selby Oil & Gas Co. was spudded in on No. 1 P. Mack, NW cor. SW Section 5-2n-20w, Jackson County.

L. Sikes had rig up for No. 3 Dolan, 990 feet south and 1,050 feet east of NW cor. Section 15-1s-8w, Stephens County. Mudge Oil Co. was drilling at 75 feet in No. 39 Woods, NE cor. SE NW Section 26-1s-5w, Stephens County. M. Green was drilling at 500 feet in No. 9 Green, SE cor. NW NW NE Section 27-1s-5w. George Pace and others were rigging up rotary for No. 4 Gilworth, SW cor. SW NW Section 2-2s-8w.

Cox & Hamon have pits dug for No. 3 fee, CWL E half W half Section 17-2s-2w, Carter County. Shell Petroleum Corp. was rigging up No. 50 Franklin, 1,200 feet from north and 410 feet from west lines of NE quarter Section 8-4s-3w, and drilling at 140 feet in No. 51 Franklin, 820 feet south and 1,275 feet west of NE cor. Section 8-4s-3w.

SHELL WINS IMPORTANT CASE

The California Supreme Court, in an important decision, reversed in toto the decision of a lower court which awarded the Alamitos Land Co. judgment for $514,228.47 against the Shell Oil Co. This is one of the so called wet oil cases. Briefly, these cases were the result of common practice to buy wet oil and pay for the crude oil on the basis of the wet gravity. This procedure resulting from common practice gave the purchasing company the advantage of increasing the gravity by dehydrating the oil after purchase. As a result of the State's Supreme Court, the Shell is now entitled to re-

cover the damages which it paid to the Alamitos Land Co. under protest more than a year ago. In accordance with the ruling of the trial court, Shell had to pay the damages before August 29, 1932, or forfeit its lease. The issue before the State Supreme Court involved for the greater part an interpretation of the language of the lease. It was held that unler the lease terms, the Shell Oil Co. was required only to pay for the oil according to the gravity test of the crude oil. The plaintiff had insisted that in paying under the royalty lease, the Shell must pay according to the gravity test of the clean oil.

Texas Panhandle Wildcats

CARSON COUNTY

McClintock et al's No. 1 Jordan, 660 ft. N, 413 ft. W Sec. 105, Blk. 4, I.&G.N. Sur.
T.D. 3,134 ft.; pumping; no gauge.
Phillips Pet. Co.'s No. 2 Cooper, 327 ft. from N and 989 ft. from W lines of S½ of SE¼ of Sec. 4, Blk. 9, I.&G.N. Sur.
Drlg. 1,220 ft.
Cy Reiger's No. 1 Chapman, 330 ft. N and 1,650 ft. E of E 240 acres, Sec. 52, Blk. 25, H.&G.N.
Location.
Robert Watchorn's No. 1 Eller, 330 ft. from S and E lines of W½ and SE¼ of Sec. 9, Blk. 7, H.&G.N. Sur.
T.D. 2,783 ft.; fishing.

CHILDRESS COUNTY

Humble O. & R. Co.'s No. 1-A Smith, 1,288 ft. S and 1,407 ft. W, Sec. 14, Blk. 9, H.&G.N. Sur.
Drlg. 3,775 ft.
Watchorn O. & G. Co.'s No. 1 Low, C NW SE¼ Sec. 417, W.&N.W. Sur., S of Kirkland.
Drlg. 5,348 ft.

COLLINGSWORTH COUNTY

T. Hunter et al's No. 1 Hill.
Rigged up.
T. Hunter et al's No. 1 Hill, 330 ft. S and 180 ft. E, Sec. 19, Blk. 17, H.&G.N. Sur.
Cellar.

DALLAM COUNTY

Eben Warner's No. 1 Jarboe, 1,520 ft. from S line, 415 ft. from W line, Sec. 2, B.&B. Sur.
S.D. 3,200 ft.

GRAY COUNTY

Bell O. & G. Co.'s No. 1 Furneaux, 434 ft. from S and E lines of SE¼ of Sec. 110, Blk. B-2, H.&G.N. Sur.
S.D. 1,038 ft.
Champlin O. & R. Co.'s No. 1 Taylor, 330 ft. from S and W of Sec. 6, Blk. 2, H.&G.N. Sur.
Drlg. 2,590 ft.
Drilling Exploration Co.'s No. 1 Lapold, 330 ft. S and W, Sec. 141, Blk. 3, I.&G.N. Sur.
Material.
Tom Doswell's No. 1 Herndon, 330 ft. from S and W lines of SE¼ of SW¼ of Sec. 166, Blk. 3, I.&G.N. Sur.
Rig.
Farliss et al's No. 1 Ball, 330 ft. from S and E lines of NW¼ of Sec. 6, Blk. 3, B.B. Sur.
Drlg. 700 ft.
Harry Foster's No. 1 Johnson, 330 ft. from N and E lines of Sec. 21, L. L. Erwin Sur.
Spudded and S.D.
Warner's No. 1 Taylor, 330 ft. N and W of SE¼ Sec. 8, Blk. 8, A. W. Wallace Sur.
Drlg. 2,515 ft.
Irish-American Oil Co.'s No. 1-B Morse, 990 ft. S and 330 ft. E, W½ NE Sec. 54, Blk. 25, H.&G.N. Sur.
T.D. 2,780 ft.
Jeffries' No. 1 Sailor, 330 ft. from N and E of E½ of NW¼ Sec. 81, Blk. 3, I.&G.N. Sur.
Drlg. 1,712 ft.
McLaughlin et al's No. 1 Baggerman, 330 ft. from S and E of NW¼ Sec. 64, Blk. 3, I.&G.N. Sur.
Rig.
Phillips Pet. Co.'s No. 1 Saunders, 330 ft. from S and 345 ft. from W lines of S½ of NE¼ of Sec. 3, Blk. 1, B.S.&F. Sur.
Drlg. 2,010 ft.
Plains Holding Co.'s No. 1 Morse-Gulf, 330 ft. S and W, Sec. 57, Blk. 25, H.&G.N. Sur.
Material.
Texas Co.'s No. 2-C Taylor, 330 ft. from N and E of E½ Sec. 52, Blk. B-2, H.&G.N. Sur.
Drlg. 3,002 ft.
Vulcan Oil Corp.'s No. 1-A Kinnard, 1,180 ft. from N and 150 ft. from W lines of E½ of SW¼ of Sec. 41, Blk. 25, H.&G.N. Sur.
Fishing 1,915 ft.

HUTCHINSON COUNTY

Gulf Prod. Co.'s No. 1 Pitcher, 330 ft. N and W, Sec. 19, Blk. M-21, T.C. Sur.
Rig.
Huey et al's No. 1 Christian, 220 ft. from S and 330 ft. from W, Sec. 32, Blk. Y, A.&B. Sur.
T.D. 3,175 ft.; P.B. to 2,996 ft.; est. 6,000,000 to 8,000,000 ft. of gas.
Phillips Pet. Co.'s No. 1 Daniel Dial, 330 ft. from S and 325 ft. from E lines of Sec. 36, Blk. M-23, T.C.R.R. Sur.
Location.
Power Pet. Co.'s No. 1 Hodges, 660 ft. S and E of most southerly 80 acres of S 160 acres of SE 200 acres, Sec. 16, Blk. M-35, T.C. Sur.
Rig.
Stinnett Oil Co.'s No. 1 Starnes, 330 ft. from N and 275 ft. from W of E½ of NW¼ Sec. 22, Blk. M-23, T.C. Ry Sur.
S.D. 570 ft.
Texilvania Oil Co.'s No. 1 Thompson, 440 ft. N and 2,735 ft. E, Sec. 15, Blk. M-23, T.C. Sur.
Drlg. 2,515 ft.

MOORE COUNTY

Sunray and Barnsdall Companies' No. 3 Jones, 330 ft. from N and W of E½ Sec. 164, Blk. 3-T, T.&N.O. Sur.
T.D. 3,636 ft.; P.B. to 3,619 ft.; estimated 40 bbls. oil per day.
Texas Interstate P. L. Co.'s No. 1 Brown, 330 ft. N and W of SE¼ Sec. 22, Blk. 44, H.&T.C. Sur.
T.D. 2,444 ft.; standardizing.

OCHILTREE COUNTY

U. S. Oil Corp.'s No. 1 W. R. Norris, 330 ft. S and 990 ft. E, Sec. 212, Blk. 43, H. &T.C. Sur.
Rigged up.

RANDALL COUNTY

English et al's No. 1 Oxnard, 350 ft. from N and 1,320 ft. from E lines of NE¼ Sec. 85, Blk. 2, A.B.&M. Sur.
T.D. 5,636 ft.; may abnd.

WHEELER COUNTY

C. & H. Drlg. Co.'s No. 1 Binkley, 330 ft. from S and W lines of NE¼ of Sec. 25, Blk. 24, H.&G.N. Sur.
T.D. 1,850 ft.; to set csg.
J. G. Cloud's No. 1 Tinley, 990 ft. from N and W of NE¼ Sec. 26, Blk. 24, H.&G. N. Sur.
S.D. 2,250 ft.; 39,800,000 ft. of gas.
Johnson et al's No. 1 Pryor, 330 ft. N and E of E½ NE¼ Sec. 48, Blk. 13, H.&G.N. Sur.
Drlg. 2,020 ft.
Martin & Dubose's No. 1 Schwarting, 330 ft. from S and 990 ft. from W lines of SE¼ of Sec. 53, Blk. 13, H.&G.N. Sur.
Drlg. 1,232 ft.
Phillips Pet. Co.'s No. 1 Binkley, 330 ft. N and 990 ft. W of W½ of SW¼, Sec. 49, Blk. 24, H.&G.N. Sur.
Rig.
Smith Bros.' No. 1-B Harlan, 330 ft. from N and 990 ft. from W lines of W½ of SW¼ of Sec. 49, Blk. 24, H.&G.N. Sur.
Drlg. 2,035 ft.
Smith Bros.' No. 1 Setter, 330 ft. from N and E of NW of NE¼ Sec. 33, Blk. 24, H.&G.N. Sur.
T.D. 2,447 ft.; making 50 to 60 bbls. hrly.

Kansas Wildcats

(Continued from Page 91)

GREENWOOD COUNTY

Mullendore et al's No. 1 Pedroje, NE SW Sec. 14-23-11.
Drlg. 900 ft.

HARVEY COUNTY

Cameron, Derby Oil Co. and Trees' No. 1 Brainard, SW SE NW Sec. 19-24-2.
Drlg. 2,220 ft.
Goering Bros.' No. 1 Brainard, NE SW Sec. 3-23-2w.
Drlg. 1,405 ft.
Hartman & Blair et al's No. 1 Redinger, NW cor. Sec. 15-24-3w.
Cellar.
D. R. Lauck et al's No. 1 Baller, SW cor. Sec. 29-24-1.
Drlg. 1,425 ft.
L. W. Prunty et al's No. 1 Davis, NE cor. Sec. 6-22-1w.
Chat 2,922 ft.; drlg. 2,928 ft.
Twin Drlg. Co. et al's (O. J. Connell), No. 1 Roth, SW cor. Sec. 16-22-2w.
H.F.W. 2,370-85 ft.; fishing 2,612 ft.
Wenzel et al's No. 1 Schrag, NW SE Sec. 24-22-3w.
T.D. 587 ft.; S.D. for csg.
Winkler Koch et al's No. 1 Mueller, SE SW NW Sec. 15-23-2w.
Spudded and S.D.

KINGMAN COUNTY

Gypsy Oil Co.'s No. 1 Tonn, SW NW SE Sec. 16-25-4w.
Spudded.
Kingman Oil Co.'s No. 1 Wetherall, NE NE SW Sec. 20-28-10w.
S NE NE SW Sec. 20-28-10w.
Moving in material.

McPHERSON COUNTY

Brosius et al's No. 1 Hanson, NE NE SW Sec. 15-17-2w.
T.D. 1,108 ft.; S.D.
Carey & Miller's No. 1 Husband, SE SE NW Sec. 6-19-3w.
Moving in material.
W. C. McBride's No. 1 Mugler, SE SW SW Sec. 22-20-3w.
K.C. lime 2,430 ft.; H.F.W. 2,556 ft.; C.O. at 2,566 ft.
Palmer Oil Corp.'s No. 1 Swenson, NE NE SW Sec. 11-18-3w.
S.D. 3,018 ft.
Shell Pet. Corp.'s No. 1 Wenger, NE cor. Sec. 2-20-1w.
Viola 3,356-64 ft., T.D.; swbd. 255 bbls. in 10 hrs.; 50% wtr.; acidized, no test.
Stafford et al's No. 1 Krehbiel, NW NW SE Sec. 27-21-3w; (O.W.D.D.).
C.O. at 2,080 ft. and S.D.

NESS COUNTY

Philips Pet. Co.'s No. 1 Young, C NW SW Sec. 13-18-21w.
Drlg. 3,715 ft.

OSAGE COUNTY

Jim Edwards' No. 1 Detrick, C NW SE Sec. 21-14-16.
Show oil and gas 783-800 ft.; T.D. 800 ft.

PAWNEE COUNTY

Atlantic Oil Prod. Co.'s No. 1 Siepake, C NE NE Sec. 15-23s-17w.
K.C. lime 3,731 ft.; coring 3,807 ft.

RENO COUNTY

Bradley's No. 1 Olmsted, SW SW SW Sec. 32-22-7w.
Moving in material.
Foraker et al's No. 1 Hiett, SE SW NE Sec. 34-24-4w.
T.D. 1,285 ft.; S.D.
Gypsy Oil Co.'s No. 1 Tonn, SW NW SE Sec. 16-25-4w.
Rig.
L. A. Mylius et al's No. 1 Sprowl, NE NW NE Sec. 1-24-5w.
Drlg. 1,170 ft.
Privett Drlg. Co.'s No. 1 Crotts, NE NW NE Sec. 27-26-10w.
Drlg. 4,640 ft.

RICE COUNTY

Allison & Fitzwilliams et al's No. 1 Stumps, NW NW SW Sec. 4-18-10w.
Siliceous lime 3,299-61 ft., T.D.; acidized; pumped 218 bbls. in 10 hrs.
Day et al's No. 1 Mason, NW NE NE Sec. 28-21-7w.
Drlg. 2,400 ft.
Foraker, Nickerson et al's No. 1 Lyons, SE NW Sec. 27-20-8w.
Simpson 3,485 ft.; H.F.W. 3,500-11 ft.; Siliceous 3,559 ft.; drlg. 3,582 ft.
Fred Rust et al's No. 1 Brown, NE cor. Sec. 16-21-6w.
Rigged up.
Vickers Pet. Co. et al's No. 1 Gouldner, SE NE NW Sec. 16-18-9w.
U.R. 10-in. csg.; T.D. 2,240 ft.

ROOKS COUNTY

Smith & Ash's (Carman & Hershey) No. 1 Nelson, NW NW NE Sec. 27-10-16w.
S.D. at 50 ft.
Stearns & Streeter's No. 1 Hoskins, SE SW SE Sec. 34-9-16w.
Siliceous lime 3,458-96 ft.; H.F.W.; abd.
Trees Oil Co. and Findeiss' No. 1 Johnson, SW SW SE Sec. 26-10-19w.
Drlg. 610 ft.

RUSH COUNTY

P. Boyle et al's No. 1 Yost, C SW SW Sec. 28-17-18w.
Drlg. 640 ft.
Eldorado Ref. Co.'s No. 1 Stang, SE NW Sec. 36-17-17w.
Spudded and S.D.
Lario O. & G. Co. and Phillips Pet. Co.'s No. 1 Benbow, NW NE NE Sec. 12-17-19w.
T.D. 3,790 ft.; fishing.
Morgan & Flynn's No. 1 Schlegel, SE SE NW Sec. 26-17-16w.
Drlg. 3,270 ft.

RUSSELL COUNTY

J. Brouk and R. D. Bailey's No. 1 Kleusner, NW SE Sec. 34-15-12w.
Rigged up.
Buffalo Oil Co.'s No. 1 Kunz, NE NE SW Sec. 19-14-15w.
Location.
Hartman & Blair's No. 1 Claussen, SE NE SW Sec. 34-12-14w.
Moving in material.
Hartman & Blair's No. 1 Hildebrandt, NW NE SW Sec. 12-14-14w (deepening from 3,252 ft.).
T.D. 3,345 ft.; S.D.
Hartman & Blair's No. 1 Rexroat, NE NW NW Sec. 31-14-14w.
Cellar.
Murphin et al's No. 1 Funk, SW cor. Sec. 19-12-13w.
Fishing at 3,040 ft.
Pryor and Lockhart's No. 1 Spicer, NE SE Sec. 21-11-15w.
Moving in material.
Reserve Pet. Co.'s No. 1 Moore, NW NW SW Sec. 15-13-12w.
Bldg. rig.
Ryan Pet. Co.'s No. 1 Newbold, NW SE NE Sec. 25-12-15w.
Drlg. 2,665 ft.
Vernon & Murphin's No. 1 Becker, NE cor. Sec. 32-15-13w.
Rigging up.
Wakefield & Armer's No. 1 Hall, NE SE SW Sec. 36-14-15w.
Drlg. 825 ft.
Winkler & Koch's No. 1 Herman, SE NW Sec. 27-12-15w.
Spud and S.D.
Wolf Creek Oil Co. et al's No. 1 Penn Mutual, SW cor. Sec. 23-15-15w.
T.D. 2,325 ft.; U.R. 10-in. csg.

SEDGWICK COUNTY

Allison & Fitzwilliams et al's No. 1 Etruthers, NE SW Sec. 34-28-2w.
H.F.W. 3,176-87 ft.; T.D. 3,295 ft.; fishing.
Magnolia Pet. Co.'s No. 1 Bartholomew, SE SE SW Sec. 30-27-4w.
Chat 3,682 ft.; 9-in. 3,692 ft.; standardizing.
Western Kansas O. & R. Co.'s No. 1 Betzen, SE NE Sec. 17-26-3w.
Fishing 3,553 ft.

SCOTT COUNTY

Atlantic Oil Prod. Co.'s No. 1 Mark "A," C SE SE Sec. 28-20-33w.
Drlg. 2,632 ft.

STAFFORD COUNTY

C. B. Davis et al's No. 1 Riley, SE cor. Sec. 19-22-11w.
Rigging up rotary.
Lario O. & G. Co.'s No. 1 Tudormorgan, SE SE NW Sec. 23-24-13w.
Pumped 65 bbls. oil in 24 hrs.; acidized and pumped 298 bbls. in 24 hrs. and 99 bbls. in second 24 hrs.; deepening.

SUMNER COUNTY

Allison & Fitzwilliams et al's No. 1-B Hitchcock, SE NW Sec. 16-30-1w.
Cellar.
Shell Pet. Corp.'s No. 1 Green, SE SW NW Sec. 3-33-2.
Layton 2,657 ft.; K.C. lime 2,735 ft.; drlg. 3,110 ft.
Wakefield et al's No. 1 Newton, SE cor. Sec. 21-30-2.
Rig.
D. J. Wilson et al's No. 1 Clark, 1,320 ft. from W and 25 ft. from S line of NW Sec. 15-35-1w.
Rigging up.

TREGO COUNTY

Central Commercial's No. 1 Wagg, NW NW SE Sec. 17-13-21w.
T.D. 1,600 ft.; fishing.
Hansa & Lauck and Olson Drlg. Co.'s No. 1 Lang, SE SE NW Sec. 1-14-21w.
Rig.
Jenmar Oil Co.'s No. 1 Jones, SE cor. Sec. 20-12-23w.
Oswald lime 3,790 ft.; T.D. 3,890 ft.; small show oil and ⅛ bbl. wtr. per hr.; acidized; no increase; drlg. 3,932 ft.

WOODSON COUNTY

Foster and Schultz's No. 1 Ferguson, C S½ NE SW Sec. 12-26-13.
U.R. to 1,200 ft.

La.-Ark. Wildcats

(Continued from Page 71)

A. C. Scott et al's No. 1 Noel Est., 330 ft. S and E, NW cor. Sec. 22-20-15.
W.O.S.R. 2,261 ft.
Shreveport Oil Corp.'s No. 5-B Muslow, 150 ft. S, 1,320 ft. E, NW cor. Sec. 9-20-1s.
Set 6⅝-in. 2,160 ft.
Simplex Oil Co.'s No. 1 Keeth, 660 ft. N and E, SW cor. SE Sec. 18-20-14.
R.U. and S.D.
G. R. Stevens' No 2 Hart, Sec. 22-21-16.
S.W. and abd. 1,023 ft.
A. F. Tarver's No. 1 George, 330 ft. N and E, SW cor. NE NE Sec. 23-19-15.
Set 10-in. 42 ft.; drlg. 1,340 ft.
Texas Co.'s No. 3 School fee, Sec. 16-20-15.
Comp.; pumping 15 bbls. 2,230 ft.
Texas Co.'s No. 4 School fee, Sec. 16-20-15.
Set 6-in. 2,159 ft.
Texas Co.'s No. 2 Thigpen, 300 ft. S and E, C Sec. 15-20-1s.
Set 6-in. 2,182 ft.
Leonard Co.'s No. 1 Kuhn, C N½ NW SW Sec. 7-20-15.
Drlg. 500 ft.

CATAHOULA PARISH

Geo. J. Phillips' No. 1 La.-Central Lbr. Co., 127 ft. N, 2,490 ft. W, SE cor. Sec. 2-9-6e.
Set 7-in. 826 ft.

CLAIBORNE PARISH

E. T. Oakes' No. 1 H. W. Patton Est., 660 ft. S and W, NE cor. Sec. 1-20-5w.
Partly rigged up and S.D.

DESOTO PARISH

E. B. Bird et al's No. 1 J. H. Johns, 330 ft. N and W, center Sec. 20-14-6.
S.D.; W.O. 2,630 ft.
W. T. Coleman's No. 1 Walker, 330 ft. N, 660 ft. W, SE cor. SE SW Sec. 18-12-11.
Rigging up.
G. O. Collins' No. 1 J. H. Riggs, 450 ft. S and W, NE cor. SW Sec. 21-14-13.
Abd.; will not drill.
DeSoto Pet. Co.'s No. 1 B. Y. Wemple, C S½ SE NE SW Sec. 14-12-11.
Arranging to set csg. 2,590 ft.
D. J. Flesh et al's No. 1 Farmer, 660 ft. S, 610 ft. E, NW cor. SE NE Sec. 14-12-13.
Set 10-in. 152 ft.
E. L. Foster's No. 1 Youngblood, Sec. 9-11-14.
S.D. 2,691 ft.
P. G. Fraley et al's No. 1 G. R. Stell, 330 ft. S and W, NE cor. Sec. 5-12-16.
Rigging up.
Leslie Prod. Co.'s No. 1 Ramsey, 150 ft. N and W of C Sec. 36-11-11.
Set 10-in. 45 ft.
National Oils, Inc.'s No. 1 B. Y. Wemple, NW SW Sec. 14-12-11.
S.D. 120 ft.
Ed Telford et al's No. 1 Thigpen, 400 ft. S, and 308 ft. W, NE cor. SW NE Sec. 33-13-13.
Rigging up.

EAST CARROLL PARISH

Century Oil & Drlg. Co.'s No. 1 Olive Dell, 660 ft. S, 300 ft. W, NE cor. Sec. 56-21-21e.
Set 10-in. 280 ft.

GRANT PARISH

C. & S. Oil Corp.'s No. 1 Swope, Sec. 17-19-1e.
W.O. 1,608 ft.

MADISON COUNTY

Frazier et al's No. 1 Frazier, 330 ft. S and E, NW cor. SE SE Sec. 23-17-10e.
D.S. stuck 3,070 ft.

MOREHOUSE PARISH

Alex Rice, tr.'s No. 1 Myers, Sec. 15-22-7.
Set 10-in. 356 ft.; drlg. 1,550 ft.

OUACHITA PARISH

J. E. Farrell's No. 3 State of La., Sec. 21-20-4e.
Drlg. 2,127 ft.

NATCHITOCHES PARISH

Clyde Crichton's No. 1 Friedman Est., 406 ft. N, 428 ft. E, SW cor. Sec. 53-7-6.
Arranging to test 1,300 ft.; old T.D. 2,324 ft.
Missouri Drlg. Co.'s No. 1 Brown Lbr. Co., 400 ft. N, 330 ft. W, SE cor. Sec. 5-10-10.
Washing to bottom 1,033 ft.

RAPIDES PARISH

Williams-Carroll & Day's No. 1 Armstrong & Murphy, 286 ft. N, 300 ft. W, SE cor. Sec. 24-5n-1w.
Drlg. shale 2,220 ft.

RED RIVER PARISH

Sterling O. & R. Co.'s No. 1 Long Bell, Sec. 19-13-9.
S.D. 2,946 ft.
J. S. Tuffree's No. 1 Wilkinson, 1,320 ft. S and W, NE cor. Sec. 11-12-11.
S.D. 1,395 ft.

SABINE PARISH

H. J. Brothers et al's No. 1 Edwards, 300 ft. S and W, NE cor. SW NW Sec. 29-9-13.
Abd. 2,015 ft.
M. T. Hines' No. 1 J. B. Hill, SW NE Sec. 4-6-11.
S.D. 2,240 ft.
Laurel Pet. Co.'s No. 1 Long Bell Lbr. Co., 330 ft. N and E, SW cor. Sec. 14-8-14.
S.D. 1,500 ft.
Lawson-Leavell & Bryant's No. 4 Bank of P. H., 330 ft. S and W, NE cor. NW NE Sec. 29-9-13.
Testing 2,012 ft.
Jack Lent's No. 1 Williams, Sec. 13-7-11.
S.D. 950 ft.
Strickland et al's No. 1 Whitney Corp., Sec. 32-10-12.
Recmt. 8-in.; T.D. 1,590 ft.

UNION PARISH

Carbon Consolidated's No. 1 Hollis, 946 ft. N, 1,056 ft. E, SW cor. SE Sec. 10-21-3e.
Drlg. 2,120 ft.
Southern Carbon Co.'s No. 67 fee, 1,980 ft. S, 750 ft. E, NW cor. Sec. 5-20-4e.
12-in. 170 ft.; 8-in. 820 ft.

WEBSTER PARISH

Virgil Likens' No. 1 E. L. Stewart, 1,020 ft. E, 600 ft. S of NW cor. Sec. 23-18-10.
Sidetracking core head, 2,006 ft.

ARKANSAS

ASHLEY COUNTY

Glenn E. McFaddin et al's No. 1 Boreine

Farms, 660 ft. S and W, NE cor. Sec. 1-13-8.
D.S. stuck 2,800 ft.

COLUMBIA COUNTY

Southern States Gas Co.'s No. 1 Piney Woods Lbr. Co., 330 ft. N and E, SW cor. NE NW Sec. 10-20-22.
S.D. 960 ft.
O. F. Whittaker's No. 1 F. Hall, 330 ft. N and W, SE cor. SE NW Sec. 11-15-20.
Drlg. 1,260 ft.

HEMPSTEAD COUNTY

A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 2-13-26.
S.D. 1,992 ft.
F. W. Martin's No. 2 Lafferty, C NW Sec. 17-14-24.
Rigging up.

LAFAYETTE COUNTY

Kamon & Neely's No. 1 Cockran, NW cor. SE SW Sec. 26-19-25.
S.D. 3,350 ft.
F. W. Martin's No. 2 Lafferty, 400 ft. N and W of C Sec. 17-14-24.
Rigging up.
Larry Romine's No. 1 Nolte, NE cor. NE NW Sec. 11-19-26.
Moving in rig.
Riggs Bros.' No. 1 Dubose, SE cor. SW NW Sec. 35-15-24.
Drlg. 2,375 ft.

LONOKE COUNTY

J. G. Strahan's No. 1 Hardin, Sec. 18-2s-7w.
S.D. 1,780 ft.

MILLER COUNTY

Ed Donohue's No. 2 Beck, Sec. 33-15-26.
Comp.; pumping 300 bbls. at 2,923 ft.
Duluth-Ark. Oil Co.'s No. 4 Beck, SE cor. SE SW Sec. 34-15-26.
Comp.; pumping 25 bbls., 2,941 ft.
M. D. K. Fitzwater's No. 1 E. H. Beck, 150 ft. N and E, SW cor. NW SW Sec. 34-15-26.
Sidetracking D.S. 2,915 ft.
Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 20-16-27.
S.D. 3,177 ft.
King Oil Corp.'s No. 1 C. H. Schroder, 200 ft. N, 330 ft. E, SW cor. SW NE Sec. 24-14-28.
S.D. 3,167 ft.
King Oil Corp.'s No. 1 Anderson, 350 ft. E, 200 ft. S, NE cor. SW NE Sec. 16-14-27.
S.D. 2,212 ft.
Magnolia Pet. Co.'s No. 8 Olivet, 336 ft. S and W NE cor. NW NW Sec. 3-16-26.
Derrick.
A. C. Roan's No. 1 Frost Est., 150 ft. N and W, SE cor. SE SW Sec. 8-15-26.
Set 10-in. 120 ft.
Lee Timberlake's No. 1 Frost Est., 330 ft. N and E, SW cor. SW SE Sec. 27-15-26.
S.D. 3,100 ft.

NEVADA COUNTY

Carnett et al's No. 1 Floyd Munin, C SW Sec. 16-14-22.
S.D. 50 ft.

OUACHITA COUNTY

F. A. Book et al's No. 1 Arnold, Sec. 24-15-16.
S.D. 2,032 ft.
Kraft Oil Corp.'s No. 1 Rath & Cartier, 330 ft. S and E, NW cor. SW SW Sec. 32-13-17.
Dry and abd. 1,852 ft.
Chas. Steele et al's No. 1 Myar Est., 330 ft. N and W, SE cor. SW SE Sec. 16-13-18.
S.D. 50 ft.

SEVIER COUNTY

Pendleton & Vaughn's No. 1 Harrison Est., 265 ft. S, 30 ft. W, CEL Sec. 34-9-30.
Drlg. plug with cable tools, 1,153 ft.

UNION COUNTY

Alice-Sidney Oil Co.'s No. 2-B E. F. Gregory, 330 ft. N and E, SW cor. NW SW Sec. 10-11-14.
Comp.; pumping 35 bbls. at 3,386 ft.
J. E. Crosbie, Inc.'s No. 1 Warren, 330 ft. S and W, NE cor. SW SW Sec. 10-17-14.
S.D.; W.O. 3,342 ft.
Gardy Drlg. Co.'s No. 1 Craig, Sec. 35-17-15.
S.D.; W.O. 2,211 ft.
Gulf Ref. Co.'s No. 49 L. Werner, 4,620 ft. N, 60 ft. E. SW cor. Sec. 5-16-16.
Drlg. 5,399 ft.
Router Oil Co.'s No. 2 Vines, NW cor. SW SE Sec. 29-18-14.
Comp.; pumping 18 bbls. at 2,216 ft.
H. L. Hunt's No. 15 E. F. Gregory, 330 ft. N and W, SE cor. Sec. 10-17-14.
P.B. to 4,000 ft.
H. L. Hunt, Inc.'s No. 16 J. D. Gregory Estate, 330 ft. S and W, NE cor. SE SW Sec. 10-17-14.
Set 10-in. 150 ft.
H. L. Hunt's No. 18 E. F. Gregory, 330 ft. N and E, SW cor. Sec. 11-17-14.
Derrick.
Mrs. R. K. Jones et al's No. 1 Davis, 330 ft. N and W, SE cor. NW NW Sec. 28-16-14.
Set 7-in. 2,746 ft.; T.D. 2,765 ft.
Lion Oil Ref. Co.'s No. 6 H. L. Rowland, 330 ft. S and W, NE cor. Sec. 15-17-14.
Dry and abd. 3,427 ft.
Marine Oil Co.'s No. 4-E Thompson, 330 ft. S and W, NE cor. NW NE Sec. 10-18-13.
Set 7-in. 3,564 ft.; T.D. 3,583 ft.
Joe Modisette et al's No. 1 D. S. Sturdevant, 330 ft. N and W, SE cor. Sec. 6-18-13.
Drlg. 4,016 ft.
C. E. Murdock's No. 1 Pumphrey, C SW NW NE Sec. 11-17-14.
Derrick.
Reuter Oil Co., Inc.'s No. 1 J. L. Kinard, 330 ft. S and E, NW cor. SE NW Sec. 32-18-14.
Pumping 2,189 ft.; no gauge.
Earl Patterson's No. 1 C. L. Smith, 1,130 ft. S, 550 ft. E, NW cor. Sec. 29-17-14.
Arranging to test at 2,902 ft.
Urbana-Union Oil Co.'s No. 1 U. S. M., 330 ft. S and E, NW cor. E½ SW Sec. 34-17-13.
Dry and abd. 4,214 ft.

MISSISSIPPI

AMITE COUNTY

Mineral Resources, Inc.'s No. 1 Anderson, C NE NW Sec. 14-3n-3e.
S.D. 550 ft.

BOLIVAR COUNTY

White & Jones' No. 1 Ballou, SE SE NW Sec. 17-24n-7w.
S.D. 20 ft.

CLARKE COUNTY

L. Beckwith et al's No. 1 Long Bell Lbr. Co., 538 ft. S, 125 ft. W of C Sec. 10-2n-16e.
T.A.; lack of funds.
Clarke County Oil Co.'s No. 1 Dora Butler, C SW SW Sec. 15-2n-16e.
Set 10-in. 62 ft.

HARRISON COUNTY

Big Ridge Oil Co.'s No. 1 Hinzin, NE Sec. 13-7s-10w.
S.D.; W.O. 1,100 ft.

HINDS COUNTY

F. H. Robertson et al's No. 1 Martin, 660 ft. E, 330 ft. N, SW cor. N½ SW NE Sec. 26-6n-1e.
Rigging up.
Bob Weaver's No. 1 T. Russell & Oparka, C NW NW NE Sec. 26-6n-1e.
Comp.; 35,000,000 ft. of gas, 2,472 ft.

JONES COUNTY

Snow-Black Pet. Co.'s No. 1 Fox, 400 ft. N, 750 ft. W, SE cor. SE SW Sec. 30-7n-12w.
D.S. stuck 4,050 ft.

LAUDERDALE COUNTY

Bob Dalton's No. 1 Bounds, Sec. 34-7n-15e.
S.D.; W.O. 1,600 ft.

MONROE COUNTY

P. J. McAlpine's No. 1 Frank Rye, Sec. 15-15s-17w.
S.D. 2,910 ft.
P. J. McAlpine's No. 1 Crook, 1,090 ft. S, 90 ft. W, NE cor. Sec. 15-13s-13w.
Fishing for liner 2,279 ft.

RANKIN COUNTY

Clevebone et al's No. 1 Boehle, 150 ft. S and W, NE cor. NW NE Sec. 18-5n-2e.
Drlg. 1,850 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, SW cor. SW SE Sec. 24-2n-9e.
Partly rigged up and S.D.

WARREN COUNTY

H. W. Elliott et al's No. 2 R. L. Parker, 780 ft. E, 1,570 ft. S, NW cor. Sec. 14-14n-1e.
S.D.; high wtr. 1,600 ft.

WASHINGTON COUNTY

Perkins & Dees' No. 1 Lee, 1,500 ft. E, 500 ft. N, SW cor. Sec. 33-15n-3w.
Set 10-in. 300 ft. and S.D.

WINSTON COUNTY

Jack Vale et al's No. 1 Moody, 713 ft. N, 667 ft. E, SW cor. NW SW Sec. 3-13n-14e.
S.D.; W.O. 1,320 ft.

La.-Ark. Proven Fields

NORTH LOUISIANA

CADDO—RODESSA

United Gas Public Service Co.'s No. 1 I. L. Young, C E½ SE Sec. 21-23-16.
Set 16-in. 212 ft.; drlg. 1,985 ft.
United Gas Pub. Ser. Co.'s No. 1 Johnson Unit, 1,245 ft. S, 1,365 ft. W, NE cor. Sec. 26-23-16.
Testing csg. 5,541 ft.

SABINE PARISH—ZWOLLE

Alexander & Crane's No. 1 Fogman, SE cor. N½ SW NE Sec. 18-7-11.
Set 6-in. 2,373 ft.
Ivan A. Allen's No. 1 La. Long Leaf, 330 ft. N and W, SE cor. NW SE Sec. 12-7-11.
S.D. 2,120 ft.
H. C. Maulding's No. 1 Davis, 350 ft. N and W, SE cor. NE NE Sec. 2-7-11.
Rigging up.
K. C. Peterson et al's No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. SW NW Sec. 2-7-9.
Derrick down.
Tex.-La.-Ark. Oil Co.'s No. 1 Pickering Lbr. Co., Sec. 3-3-12.
S.D. 2,742 ft.

EAST TEXAS (BORDER COUNTIES)

HARRISON COUNTY

R. C. Payne et al's No. 1 Lowery, H. D. Spain Sur.
P.B. to 3,524 ft.

MARION COUNTY

Ed S. Holman's No. 1 Henderson, R. Bennington Sur.
P.B. to 2,443 ft.

PANOLA COUNTY

R. A. Graddy's No. 1 M. J. McCormick, J. McAdams Sur.
Moving in rig.
George Hudson et al's No. 1 J. F. Nail, C. McGeary Sur.
Set 8-in. 40 ft.; fishing for core bbl. at 2,345 ft.
Geo. Le Grand's No. 1 P. J. Wardleigh, A. Thompson Sur.
Set 10-in. 62 ft.
R. W. Price's No. 1 Crawford, J. A. Williams Sur.
Set 10-in. 64 ft.
Fred Stovall Drlg. Co.'s No. 1 H. D. Ivey, P. Martin H.R.S.
S.D. for csg. 1,980 ft.

SHELBY COUNTY

Cliff Stoval's No. 1 Pickering Lbr. Co., C. H. Patterson Sur.
S.D.; rig repair. 1,485 ft.
O. P. Bush, trustee's No. 1 Pickering Lbr. Co., P. W. Harvey Sur.
S.D. 730 ft.

ALABAMA

COVINGTON COUNTY

Geometer Prod. Corp.'s No. 1 Culbreath, SW cor. SW NE Sec. 8-2n-14e.
Drlg. 4,800 ft.

HOUSTON COUNTY

Rice O. & G. Co.'s No. 1 Oakley est., SE cor. NW SW Sec. 9-3n-29e.
S.D.; W.O. 2,506 ft.

LAMAR COUNTY

DeSoto O. & G. Corp.'s No. 1 Gardner, Sec. 22-15s-16w.
Arranging to deepen, 4,182 ft.

WALTON COUNTY—FLORIDA

Geometer Oil Corp.'s No. 2 Walton Land & Timber Co., Sec. 10-1s-19w.
Drlg. core tests on block; R.U. and S.D.

Gulf Coast Wildcats

(Continued from Page 82)

441.9 ft. W of NE cor. of Lot 59, H.T.&B. Sur. No. 23.
T.D. 5,645 ft.; 7-in. csg. 5,627 ft.; waiting on orders.

Texas Co.'s No. 17 Houston Oil Fields Assn., 244 ft. S, 244 ft. W from NE cor. of Lot 1, A.C.H.&B. Sur. No. 91.
Location.

Texas Co.'s No. 16 Houston Oil Fields Assn., 247 ft. S, 440 ft. E from NW cor. of Lot 19, A.C.H.&B. Sur. No. 91.
Location.

Texas Co.'s No. 2 Dawson, 247 ft. S, 241 ft. W of NE cor. of Lot 58, H.T.&B. Sur. No. 23.
Location.

Texas Co.'s No. 3 F. Lieder, 247.5 ft. S and 347.5 ft. E of NW cor. of Lot No. 3, A.C.H.&B. Sur.
T.D. 4,004 ft.; 7-in. csg. 3,978 ft.; I.P. 180 bbls. per day; tubing pressure 250 lbs.

Trumba Oil Co.'s (J. M. Campbell) No. 1 H. McCauley, 150 ft. each way out of NE cor. of W 5 acres of Lot No. 2, A.C.H.&B. Sur. No. 91.
Location.

Turnbull & Irwin's No. 1 Hart, center of Lot 10, H.T.&B. Sur. No. 24.
Drlg. shale and lime 2,950 ft.

Whittle Oil Co.'s No. 1 Duke, 320 ft. W of E line, center N and S Lot 18, H.T.&B. Sur. No. 23.
Moving in rig.

PLEDGER—BRAZORIA COUNTY

Humble O. & R. Co.'s No. 1 T. L. Smith, 1,283 ft. NE from W cor. of 88.86-ac. lease, thence 887 ft. SE at R/A. D. McNeel Sur.
Drlg. sand and boulders 1,911 ft.

PORT LAVACA—CALHOUN COUNTY

Adrian Moore et al's No. 1 O. F. McMaster, 330 ft. out of SE cor. of 80-ac. tract, M. Sanches Sur.
Location.

Halliburton Oil Prod. Co.'s No. 1 Bruton 660 ft. due E of Steinberger Pet. Co.'s No. 1 Ishofner, M. Sanches Sur.
13-in. csg. 490 ft.; drlg. shale 2,389 ft.

Texas Co.'s No. 1 I. Blardone, 1,650 ft. from E line and 1,350 ft. from N line of lease, Samuel Shupe Sur.
Drlg. shale 6,100 ft.

Texas Co.'s No. 1 R. Duelberg, 1,565 ft. NE along S line from SW cor. of lease and 390 ft. N at R/A. M. Sanches Sur.
Coring sandy shale 6,222 ft.

Texas Co.'s No. 1 J. A. Marten, 1,700 ft. SW along N line from NE cor. and 1,400 ft. at R/A in SE direction, Florentina Garcia League Sur.
Drlg. lime 5,617 ft.

Texas Co.'s No. 1 H. C. Wehmeyer, 900 ft. NW along W line from upper SW cor of lease, and at R/A NE 1,213 ft., M. Sanches Sur.
T.D. 6,333 ft.; P.B. 6,261 ft.; flowed oil for 2 min. on D.S. test.

Tulane Gordon's No. 1 W. A. Shofner, 339.5 ft. from N line, 295 ft. from E line of block, D. Tilley Addn., M. Sanches Sur.
Location.

ANAHUAC—CHAMBERS COUNTY

Humble O. & R. Co.'s No. 3 Middleton, 2,332 ft. N of S line, 2,333 ft. E of W line of Sec. 58, H.&T.C. Sur.
Derrick.

Humble O. & R. Co.'s No. 1 Broussard, 466 ft. from W line, 466 ft. from N line, Sec. 63, H.&T.C. Sur.
T.D. 7,100 ft.; running 7-in. csg.

Humble O. & R. Co.'s No. 1 J. J. Clark, 466 ft. N of S line and 466 ft. W of E line of H.&T.C. Sur., Sec. 64.
T.D. 7,117 ft.; I.P. 31 bbls. per hr. through ¼-in. choke; tubing pressure 1,060 lbs.; csg. pressure 1,200 lbs.

Humble O. & R. Co.'s No. 2 Middleton, 466 ft. out of NE cor. of H.&T.C. Sur., Sec. 64.
Derrick.

BARBERS HILL—CHAMBERS COUNTY

McAlbert Oil Co.'s No. 3-B Heggins, 50 ft. S of N line and 50 ft. E of W line.
Top sand 4,553 ft.; coring sand 4,566 ft.

Mills Bennett Prod. Co.'s No. 2-C Barber, 93 ft. N of No. 1, 100 ft. E of W line.
Drlg. shale and lime 1,159 ft.

Sun Oil Co.'s No. 1 Higgins, 50 ft. S of N line, 50 ft. W of E line.
Drlg. sand and cap rock 1,044 ft.

Sun Oil Co.'s No. 11 Chambers County, half way between and in line with Nos. 9 and 10.
Drlg. rock 1,798 ft.

Texas Gulf Prod. Co.'s No. 3 Fitz, 450 ft. E of W line, 75 ft. N of S line.
Drlg. salt 2,560 ft.

Texas Gulf Prod. Co.'s No. 13-A Kirby, 613 ft. N of S line, 85 ft. W of E line, W of Humble O. & R. Co.'s No. 8-B Kirby.
Drlg. salt 3,791 ft.

Texas Gulf Prod. Co.'s No. 2 Fitz-Meadows, 281 ft. S of N line, 50 ft. W of E line of T. S. Fitz lot.
Drlg. salt 2,389 ft.

Yount Lee Oil Co.'s No. 28 Chambers County, 50 ft. N of S line, direct offset to Sun's No. 10 Chambers County, Wm. Bloodgood Sur.
T.D. 3,793 ft.; washing.

Yount Lee Oil Co.'s No. 30 Chambers County School Land, 50 ft. N of S line, direct offset to Sun Oil Co.'s No. 11.
Derrick.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 19 Mays, 400 ft. SE of No. 11, 400 ft. SW of No. 14, E. H. R. Wallace Sur.
T.D. 2,500 ft.

BIG CREEK—FORT BEND COUNTY

Trans-State Oil Co.'s No. 2 Ahlers, 85 ft. N of Gulf Stream, Inc.'s No. 1 Ahlers, Michael Young Sur.
T.D. 2,685 ft.; 7-in. csg. 2,636 ft.; testing.

BOLING—FORT BEND COUNTY

Irwin Larsen et al's No. 1 J. R. Farmer, 100 ft. NW and 100 ft. SW from E cor. of 125-ac. lease, James Scott Sur.
Location.

Midland Oil Co.'s No. 1 P. F. Coulter, 150 ft. from S line, 4,174 ft. from W line of 100-ac. tract, Miller League No. 2.
Set screen; T.D. 4,186 ft.

Navarro Oil Co.'s No. 2 H. R. Farmer, 362 ft. from SW line and 160 ft. from SE line of Humble O. & R. Co.'s lease, James Scott Sur.
Derrick.

Sun Oil Co.'s No. 1 H. R. Farmer, 103 ft. from N line, 359.2 ft. from W line of 100-ac. tract, James Scott League Sur.
Bldg. derrick.

Yew Development Co.'s No. 1 C. E. Farmer, 600 ft. S and 325 ft. W of the NE cor. of 50-ac. lease, James Scott Sur.
Rig up.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 42 Moore, 345 ft. S, 305 ft. W of SW cor. of E.M.G. Co. Sur.
Drlg. shale 4,256 ft.

Gulf Prod. Co.'s No. 43 Moore, 350 ft. E along S line of SW cor. of E.M.&G. Co. Sur. and 740 ft. N at R/A to said line of lease, 350 ft. E of No. 3 Moore.
Drlg. rock 4,512 ft.

THOMPSON—FORT BEND COUNTY

Gulf Prod. Co.'s No. 2 S. B. Gehr, 340 ft. from S line, 571 ft. E from Gulf Prod. Co.'s No. 1 S. B. Gehr, S. Kennedy Sur.
Drlg. sand 5,390 ft.

Gulf Prod. Co.'s No. 8 Hammerstram, 1,386 ft. from S line, and 2,436 ft. from W line of lease, S. Kennedy Sur.
T.D. 5,380 ft.; I.P. 1,400 bbls. through ¾-in. choke.

Gulf Prod. Co.'s No. 108 Phoenix.
Moving in rig.

Humble O. & R. Co.'s No. 25-A Booth.
Derrick.

Humble O. & R. Co.'s No. 12 Booth, 281 ft. from N line of lease, 1,550 ft. W of No. 11, John Rabb Sur.
Topped oil sand 5,310 ft.; coring sand and shale 5,330 ft.: no report.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 46 Cade, 424 ft. SW of No. 35, 424 ft. NW of No. 36, Fitzsimmons Sur.
Rig up.

Yount Lee Oil Co.'s No. 1 Taylor, D. Dunman Sur., 125 ft. due E of No. 1-A Gordon-Viterbo.
Location.

Yount Lee Oil Co.'s No. 24 Cade.
T.D. 6,063 ft.; cutting and pulling liner.

Yount Lee Oil Co.'s No. 16 Smith.
T.D. 5,922 ft.; P.B. 5,550 ft.; set whipstock 5,543-50 ft.

Yount Lee Oil Co.'s No. 1 Acon & Hughes, 85 ft. E of No. 1 Pabst, on a 3.82-ac. tract, M. Dunman Sur.
Rig up.

Yount Lee Oil Co.'s No. 1-A Lockhart, 85 ft. W of No. 1 Pabste, on a 5.28-ac. tract, M. Dunman Sur.
Drlg. shale 3,920 ft.

Yount Lee Oil Co.'s No. 1-A Gordon-Viterbo, 122 ft. E of W line, 326 Ft. S of N line of Lot 1, Martin Dunman Sur.
Top sand 4,368 ft.; 7⅝-in. csg. 4,369 ft.; T.D. 4,393 ft.

Yount Lee Oil Co.'s No. 1 Loustalbot, 300 ft. from N line, 121 ft. from E line of Lot No. 3, offset to No. 2 Stewart, Martin Dunman Sur.
T.D. 4,095 ft.; to P.B.

DICKINSON—GALVESTON COUNTY

Humble O. & R. Co.'s No. 1 Fugger, 323 ft. from W line, 522 ft. from N line of lease, J. S. Sherman Sur.
Drlg. shale 1,805 ft.

Humble O. & R. Co.'s No. 1 Townes, 440 ft. E of W line, 550 ft. N of N bank of Bayou, B.B.B.&C. Sur.
Derrick.

Humble O. & R. Co.'s No. 3-A Stewart, 338 ft. S of easterly NE cor., 2,016 ft. W of easterly E line, 425 ft. S of S line of Bayou, John Sellers Sur.
T.D. 8,146 ft.; 7-in. csg. 8,072 ft.; P.B. 8,040 ft.; I.P. 34 bbls. per hr. through ¼-in. choke; tubing pressure 1,700 lbs.; csg. pressure 2,500 lbs.

Humble O. & R. Co.'s No. 2-A Maco Stewart, 3,324 ft. S along E line of S bank of Bayou and 566 ft. W of E line at R/A John Sellers Sur.
Drlg. shale 1,925 ft.

Stanolind O. & G. Co.'s No. 1 State, 247 varas S of Humble O. & R. Co.'s No. 1 Jones.
Driving piling.

Turnbull & Irwin's No. 1 J. Piazza, 460 ft. W and 250 ft. S of Humble O. & R. Co.'s No. 1 Jones, J. S. Sherman Sur.
Drlg. shale 6,500 ft.

ARRIOLA—HARDIN COUNTY

Houston Oil Co.'s No. 8 fee, Arriola Sur.
Rig up.

Houston Oil Co.'s No. 11 fee.
Drlg. shale 4,020 ft.

Houston Oil Co.'s No. 6-X fee, 400 ft. SE of No. 4-X, 500 ft. SE of No. 5-X fee.
Drlg. shale 3,290 ft.

Republic Prod. Co.'s No. 11 fee, E. Arriola Sur.
Tested S.W.; T.D. 3,842 ft.; waiting orders.

BATSON—HARDIN COUNTY

Danciger Oil & Refining Co.'s No. 1 Tom Wynne, 250 ft. S, 150 ft. W of Deering's No. 1 Cruse.
12½-in. csg. 1,023 ft.; drlg. gumbo 1,810 ft.

Sterling O. & R. Co.'s No. 1 Doucette, 565 ft. N from NE cor. of Nunn tract thence 565 ft. E at R/A, Wm. Donoho Sur.
Top sand 5,684 ft.; 7-in. csg. 5,678 ft.; T.D. 5,696 ft.

John Deering's No. 1 Bullock, 1,000 ft. N, 17 ft. E of middle line of 30-ac. tract, Bullock tract, Dondo Sur.
Drlg. hard sand 5,710 ft.

John Deering's No. 2 Cruse, 200 ft. E and 50 ft. S of No. 1 Cruse, W. Donaho Sur. Rig up.
John Deering's No. 3 Hooks, 200 ft. E of Cruse and Hooks' dividing line and 50 ft. S of straight line from No. 1 Cruse and No. 2 Hooks, W. Donoho Sur.
T.D. 5,642 ft.; 7-in. csg. 5,575 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 11-N Jordit, 200 ft. due W of No. 11-R Jordit. Clearing location.

SOUR LAKE—HARDIN COUNTY

Arlis Pet. Co.'s No. 1 Harkan and Langham. Dig pits.
Texas Co.'s No. 320 fee, S 89 deg., W, 117 ft. from No. 274.
Drlg. shale 620 ft.
Texas Co.'s No. 319 fee, S 44 deg., 42 ft., W 300 ft. from No. 265 and 400 ft. from No. 318.
7-in. csg. 1,832 ft.; T.D. 2,032 ft.; I.P. 32 bbls. per day, pumping.

HUMBLE—HARRIS COUNTY

Sun Oil Co.'s No. 84 River, 300 ft. E of No. 61, in 292-ac. tract, Robert Dunman Sur. Location.
Sun Oil Co.'s No. 74 River, 275 ft. E of No. 73 in 292-ac. tract, Robert Dunman Sur.
T.D. 1,231 ft.; 7-in. csg. 1,215 ft.
Sun Oil Co.'s No. 29 Bender.
Drlg. shale 3,176 ft.
Texas Co.'s No. 31 Humble, 300 ft. due south of No. 28.
Drlg. gumbo 1,856 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 39 Taylor, 1,729 ft. S. 75 ft. W of NE cor. of J. Hampton Sur.
Drlg. shale 5,972 ft.
Gulf Prod. Co.'s No. 21 Taylor.
S.D. 3,894 ft.
Hamil & Smith's No. 1 House, J. Hamilton Sur.
Top sand 6,482 ft.; T.D. 6,486 ft.; cmtd. 4¾-in. csg. at 6,306 ft.
Rio Bravo Oil Co.'s No. 27-A Settegast, 377 ft. S, 553 ft. W of NE cor. of Settegast "A" tract, James Hamilton Sur.
Standing 5,526 ft.
Rio Bravo Oil Corp.'s No. 9-A Settegast, 1,575 ft. N line, 350 ft. E line NE cor. "A" lease, J. A. Kopman Sur.
T.D. 5,411 ft.; standing.

MYKAWA—HARRIS COUNTY

Alpha Pet. Co.'s No. 1 W. T. Carter, Lbr. & Bldg. Co., Blas Herrera Sur., 1,320 ft. from E line, 200 ft. from S line of 220-ac. tract.
Drlg. shale 4,670 ft.
H. C. Aiken's No. 1 Waggoner, F. J. Rothas Sur.
Rig up.
West Prod. Co.'s No. 1 J. E. Lobit, Blk. 9, F. J. Rothas Sur.
Drlg. shale 3,220 ft.
West Prod. Co.'s No. 1 Platt, W. B. Walker Sur., A-859.
Drlg. shale 1,545 ft.

TOMBALL—HARRIS COUNTY

Humble O. & R. Co.'s No. 3 Dodge, 250 ft. from most southerly S line, 317 ft. from westerly E line. J. H. Edwards.
Drlg. shale 4,990 ft.
Humble O. & R. Co.'s No. 2 Holderrith, 600 ft. from S line, 466 ft. from W line of tract.
Drlg. shale 5,231 ft.
Humble O. & R. Co.'s No. 1 Hillegeist, 1,-118 ft. from S line, 389 ft. from W line of 44,35-ac. tract, J. House Sur.
Drlg. shale 4,748 ft.
Humble O. & R. Co.'s No. 1 Schultz, 550 ft. from S line, 356 ft. from W line of 42.05-ac. tract, J. House Sur.
T.D. 5,568 ft.; 7-in. csg. 5,562 ft.
Humble O. & R. Co.'s No. 1 Michel, 510 ft. from N line, 466 ft. from W line of lease, Wm. Hurd Sur.
T.D. 5,578 ft.; 7-in. csg. 5,573 ft.
Texas Co.'s No. 3 Ziegler, 1,449 ft. E of W line and 446 ft. S of N line of lease, 930 ft. E of No. 1.
Sidetracked from 5,425-65 ft.; prepare to core.

VANDERBILT—JACKSON COUNTY

Imperator Oil Co.'s No. 1 Dutton, S C of Lot No. 11, Blk. 25, 450 ft. S of R.R. and 1,350 ft. W line of townsite, Ray Musquiz Sur.
Rigged up and S.D.
Turman Oil Co.'s No. 1 T. H. Miller, 150 ft. each way out of E 50 ac. of Miller 100-ac. tract in Ray Musquiz Sur.
Rigging up.

BIG HILL—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 1-B Pipkin & Davis, 2,225 ft. from E line and 2,385 ft. from N line of survey, Wm. McFadden Sur.
Top caprock 1,526 ft.; 13⅜-in. csg. at 1,-527 ft.

FANNETT—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 8 Burrell, 750 ft. N from SW cor. of C. W. Burrell's 232-ac. tract and 100 ft. E at R/A.
T.D. 4,308 ft.; I.P. 300 bbls. per day; ½-in. choke.
Gulf Prod. Co.'s No. 5 Junker.
Location.

CLEVELAND—LIBERTY COUNTY

Black Gold Pet. Oil Corp.'s No. 2 R. D. McDonald, 466 ft. W of most westerly E line and 466 ft. N of most northerly S line of survey, 933 ft. W of Gulf Prod. Co.'s No. 7-C Kirby Lbr. Co., T. Devers Sur.
Derrick.
Gulf Prod. Co.'s No. 9-C Kirby Lbr. Co., 1,-967 ft. N, 1,400 ft. E from the NE cor. of J. S. Eldridge Sur. in the John Pleasant Sur.
Drlg. shale and lime 2,268 ft.
William J. Colegrove et al's No. 1 State School Land & Dev. Co., 446 ft. from W line and 170 ft. from S line of survey, Clayton Harper Sur.
Location.

ESPERSON—LIBERTY COUNTY

General Crude Oil Co.'s No. 21 Esperson.
Drlg. shale 6,011 ft.
General Crude Oil Co.'s No. 1 W. D. Kay, Malcolm Duncan Sur., 1,537 ft. along N T.D. 6,655 ft.; P.B. to 5,900 ft.; drlg. shale 6,697 ft.
General Crude Oil Co.'s No. 10 Davis, 2,000 ft. from E line, 660 ft. from S line of D. Kokernut Sur.
Drlg. shale 6,256 ft.

HANKAMER—LIBERTY COUNTY

Cretaceous Oil Co.'s No. 3 Ezzell, 450 ft. W of E line of tract, Levi Barrow Sur.
Moving in derrick.
Eljean Oil Co.'s No. 1 Ezzell, 1,325 ft. from N. 150 ft. from E line of Ezzell 175-ac. tract.
Drlg. shale 2,420 ft.
Gulf Prod. Co.'s No. 1-B W. L. Bingle, 159 ft. E along S line of H.&T.C. Sur., thence 378 ft.
Rig up.
Gulf Prod. Co.'s No. 18 Boyt, E offset to Wilson Broark Oil Co.'s No. 1 Barrow, in Levi Barrow Sur.
Rig up.
Gulf Prod. Co.'s No. 19 E. W. Boyt, 100 ft. from W line, 298 ft. S of No. 18, Amos Allen Sur.
Bldg. derrick.
Jones Drlg. Co.'s No. 1 Ezzell, 1,050 ft. S of N line, 150 ft. W of E line of Levi Barrow Sur.
Drlg. shale 1,510 ft.
Will Strozier et al's No. 1 Ezzell, 700 ft. N of S line, 150 ft. W of E line of Levi Barrow Sur.
Derrick.

HULL—LIBERTY COUNTY

Republic Prod. Co.'s No. 155 Dolbear, Jesse Devore Sur.
Drlg. shale 2,510 ft.

MARKHAM—MATAGORDA COUNTY

Superior O. & G. Co.'s No. 1 Hawk, W. H. Gainor Sur., west flank of dome.
T.D. 4,213 ft.; 7-in. csg. 4,185 ft.; cored oil sand 4,200-10 ft.; flowed salt wtr. cut with oil and gas; flowing 5 bbls. of oil per hr. and 40% wtr. on ¼-in. choke.

MOSS BLUFF—LIBERTY COUNTY

Gulf Coast Sulphur Co.'s No. 1 McManus, 588 ft. from E, 1,650 ft. from N line of W. A. tract, B. M. Spinks Sur.
Location.

CONROE—MONTGOMERY COUNTY

Humble O. & R. Co.'s No. 1 Bailey, 1,100 ft. SW from NE cor. of Alex McCowan Sur. and 466 ft. from S line R. Kuykendahl Sur.
T.D. 5,120 ft.; recovered 870 ft. of oil on D.S. test; 7-in. csg. 5,070 ft.
Sun Oil Co.'s No. 32 Foster.
Drlg. shale 5,057 ft.
Sun Oil Co.'s No. 3 McDonald.
T.D. 5,090 ft.; I.P. 30 bbls. per day; csg. pressure 640 lbs.; tubing pressure 65 lbs.

SPLENDORA—MONTGOMERY COUNTY

Bryce McCandless et al's No. 1 Texas Long Leaf Lbr. Co., 330 ft. from N and E lines of the W½ of Blk. No. 8, Walker County School Land Sur.
Derrick.

ORANGE—ORANGE COUNTY

Trio Oil Co.'s No. 1 D. S. Comier, 69 ft. W of E line and 39 ft. S of N line of 6.83-ac. tract in W. M. Dyson Sur.
Drlg. shale 2,912 ft.

PORT NECHES—ORANGE COUNTY

Texas Co.'s No. 3 Orange National Bank, 750 ft. S of N line and 295 ft. E of W line of lease, Jacob Beaumont Sur.
T.D. 4,812 ft.; 7-in. csg. 4,760 ft.; running screen.
Texas Co.'s No. 4-B Polk, 750 ft. S and 1,-450 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Location.
Texas Co.'s No. 5-B Polk, 750 ft. S and 850 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Rig up.
Texas Co.'s No. 6-B Polk, 750 ft. S and 250 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Location.

LIVINGSTON—POLK COUNTY

Gem Oil Co.'s No. 3 Watt, 300 ft. S line, 330 ft. W line of lease, A. Viesca Sur.
Location.
Gem Oil Co.'s No. 2 Pratt, A. Viesca Sur.
Rig up.
Gem Oil Co.'s No. 6 Davis & Holmes, 652 ft. from W and 662 ft. from N line of survey, A. Viesca Sur.
Rig up.
Gem Oil Co.'s No. 7 Davis & Holmes, 1,050 ft. from E line, 800 ft. from N line of lease, A. Viesca Sur.
T.D. 4,330 ft.; 7-in. csg. 4,314 ft.; swbng.
Johnson & Johnson's No. 1 I. B. Munson, 330 ft. from S and E lines of 26.12-ac. tract, A. Viesca Sur.
T.D. 4,340 ft.; 5 3/16-in. csg. 4,286 ft.
Sun Oil Co.'s No. 3 Pratt, 330 ft. W and 288 ft. S from SE cor. of T. A. Carlton Oil Co.'s 30-ac. lease, A. Viesca Sur.
Derrick.
Werby and Refugio Oil Corp.'s No. 5 Dick & Failing, 330 ft. E of W line of tract, 550 ft. N of No. 1, A. Viesca Sur.
T.D. 4,286 ft.; 7-in. csg. 4,266 ft.; P.B. to 4,279 ft.; running screen to test.

SAN FELIPE—WALLER COUNTY

Buck Oil Co.'s No. 1 Vaughn, 660 ft. due E of Seaporton Co.'s No. 1 Vaughn, J. McFarland Sur.
Drlg. shale 2,720 ft.

GRETA—REFUGIO COUNTY

Hewitt & Daugherty's No. 12 Lambert.
Rig up.
Humble O. & R. Co.'s No. 20 J. F. B. Heard.
Derrick.
Humble O. & R. Co.'s No. 19 Heard, 466 ft. from N line, 466 ft. from W line of John Peoples Sur.
7-in. csg. at 4,377 ft.; R.U. to pump.
Humble O. & R. Co.'s No. 1 Marberry, 4,-558 ft. from S line, 466 ft. from W line of John Denn Sur.
Coring sand 4,375 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 26 Rooke, 660 ft. W of No. 24 Rooke.
Location.
Houston Oil Co.'s No. 24 Rooke, 660 ft. NW of No. 21, McMullen Sur.
Drlg. 1,600 ft.
Houston Oil Co.'s No. 25 Rooke, 660 ft. W of No. 23, McMullen Sur.
10-in. csg. 1,089 ft.
Houston Oil Co.'s No. 22 P. H. Rooke, 660 ft. from No. 19, 690 ft. from No. 20.
T.D. 4,912 ft.; I.P. 530 bbls. through ¼-in. choke.
United Gas Co.'s No. 19 Lambert.
T.D. 3,505 ft.; made salt wtr.; to deepen.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 6 W. F. Schlottman, 400 ft. in northeasterly direction from No. 5, J. F. Perry Square League.
Drlg. 759 ft.

McFADDIN-O'CONNOR DISTRICTS—VICTORIA AND REFUGIO COUNTIES

Texas Co.'s No. 9 McFaddin, 1,850 ft. N. 2 deg., 45 ft. S from No. 2.
9⅝-in. csg. 3,643 ft.; T.D. 3,967 ft.
Houston Oil Co.'s No. 1 Fagan, 330 ft. from Guadalupe River on the Fagan Island, F. and J. M. Rodrigues Sur., SW of McFaddin Field.
10-in. csg. 1,027 ft.

LOUISE—WHARTON COUNTY

Pure Oil Co.'s No. 1 John Macha, 318 ft. from NW line and from SE line of F. Walnut Sur., and 467 ft. from NE line of 101.53-ac. lease, M.&C. Sur. No. 25.
Spudded.
Pure Oil Co.'s No. 3 Stewart, 1,000 ft. SW and 318.25 ft. SE from N cor. of W. L. Stewart's 160-ac. tract, Morris and Cummings Sur. No. 25.
Spudded.

BAY JUNOP—TERRABONNE PARISH

Texas Co.'s No. 6-B State, 458 ft. S, 498 ft. E of NW cor. of Sec. 34-21s-14e.
P.B. and sidetracked at 6,081 ft.; drlg. sand 7,210 ft.

CALLIOU ISLAND—TERRABONNE PARISH

Texas Co.'s No. 23 Calliou Island.
Drlg. sand 3,912 ft.

SOUTH LOUISIANA FIELDS

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 22 Watkins, 2,230 ft. W and 1,340 ft. S of NE cor. Sec. 18-12s-12w.
Rig up.
Shell Pet. Corp.'s No. 21 Watkins, 1,570 ft. E of NW cor. Sec. 17-12s-13w.
Drlg. sandy shale 2,393 ft.
Shell Pet. Corp.'s No. 3 State.
T.D. 6,159 ft.; flowed 298 bbls. oil, 60% S.W.; tubing pressure 950 lbs.; casing pressure 1,120 lbs.

BOSCO—ACADIA AND ST. LANDRY PARISHES

Oswego Oil Co.'s No. 2 Moulton, Sec. 34-8s-3e.
13⅜-in. csg. at 1,335 ft.; 7-in. csg. 8,575 ft.; T.D. 8,606 ft.
Superior Oil Prod. Co.'s No. 8 Larcade, 1,-773 ft. S, 3,062 ft. E of NW cor. Sec. 35-8s-3e.
13⅜-in. csg. 1,215 ft.; drlg. shale 4,227 ft.
Superior Oil Prod. Co.'s No. 9 Larcade, 2,-755.83 ft. N, 1,936.23 ft. W of SE cor. of Sec. 34-8s-3e.
13⅜-in. csg. 1,257 ft.; drlg. sand and shale 7,884 ft.
Superior Oil Prod. Co.'s No. 1 S. Martinez, 3,673.1 ft. S, 2,033 ft. E of NW cor. Sec. 35.
Drlg. sandy shale 7,480 ft.
Superior Oil Prod. Co.'s No. 2 Le Blanc, 1,698 ft. S, 937.09 ft. W of NE cor. Sec. 33-8s-3e.
Rig up.
Superior Oil Prod. Co.'s No. 2 E. Mire, 1,-039.07 ft. S, 916.82 ft. W of NE cor. Sec. 33-8s-3e.
Location.
Superior Oil Prod. Co.'s No. 2 Prejean, 300 ft. S, 490 ft. W of NE cor. of SW¼ Sec. 34-8s-3e.
T.D. 8,570 ft.; 7-in. csg. 8,547 ft.
Superior Oil Prod. Co.'s No. 2 C. B. Hernandez, 300 ft. N 300 ft. W of SE cor. of NW¼ Sec. 34-8s-3e.
T.D. 8,543 ft.; 7-in. csg. 8,558 ft.
Superior Oil Prod. Co.'s No. 3 C. B. Hernandez, 250 ft. N, 1,016 ft. W of SE cor. of SW¼ Sec. 34-8s-3e.
T.D. 8,575 ft.; 7-in. csg. 8,555 ft.
Superior Oil Prod. Co.'s No. 7 Hernandez, 1,291.1 ft. N 667.5 ft. E of SW cor. of NW¼ Sec. 34-8s-3e.
Drlg. shale 8,617 ft.
Superior Oil Prod. Co.'s No. "G" Hernandez, 3,358 ft. S, 683 ft. E of NW cor. Sec. 35-8s-3e.
Drlg. hard shale 8,231 ft.
Superior Oil Prod. Co.'s No. 3 Malancon, 400 ft. S, 380 ft. E of NW cor. of SW¼ Sec. 34-8s-3e.
Drlg. shale and sand 8,390 ft.
Superior Oil Prod. Co.'s No. 2 Falls, 330 ft. N, 1,796 ft. W of SE cor. of Sec. 27-8s-3e, 13⅜-in. csg. at 1,235 ft.; T.D. 7,844 ft., P.B. 6,330 ft.; trying to sidetrack at 6,-383 ft.

DARROW—ASCENSION PARISH

Athens Oil Co.'s No. 1 United Land, 1,600 ft. S, 1,530 ft. W of NE cor. Sec. 15-10s-4e.
Rig up.
Humble O. & R. Co.'s No. 5 Community, 228 ft. SW of NE line of section, 200 ft. at R/A to east bank of river, Sec. 33-10s-2e.
Drlg. shale 2,969 ft. (corrected).
Humble O. & R. Co.'s No. 4 Community, 4,825 ft. from NE cor. and 283 ft. S of N line at R/A, Sec. 33-10s-2w.
Digging cellar.

CAMERON MEADOWS—CAMERON PAR.

Burton-Sutton Oil Co.'s No. 5 School Land 150 ft. N of S line and 300 ft. E of No. 2, Sec. 16-14s-13w.
Drlg. shale 3,820 ft.
Burton-Sutton Oil Co.'s No. 4 School Land, 2,891 ft. W and 150 ft. N of SE cor. of Sec. 16-4s-12w.
Derrick.
Magnolia Pet. Co.'s No. 11 Cameron Meadows.
T.D. 3,362 ft.; I.P. 364 bbls. per day through ¼-in. choke.
Texas Oil Co.'s No. 11 Calcasieu Lake.
Drlg. shale 2,110 ft.

CHOCTAW DOME—IBERVILLE PARISH

Standard Oil Co.'s No. 1 Myrtle, 900 ft. N and 550 ft. W of SE cor. of SW¼ of Sec. 52-9s-11e.
Rig up.
Standard Oil Co.'s No. 5 Gay, 2,450 ft. S and 425 ft. E of NW cor. of NE Sec. 32-9s-11e.
Reaming; T.D. 4,126 ft.

DOG LAKE—TERREBONNE PARISH

Texas Co.'s No. 17 State.
Drlg. sandy shale 4,290 ft.
Texas Co.'s No. 8 Louisiana Land & Exploration.
T.D. 5,569 ft.
Texas Co.'s No. 11 State, 150 ft. N and 2,474 ft. W SE cor. Sec. 31-21s-16e.
S.D. 2,914 ft.

GARDEN ISLAND BAY—TERREBONNE PARISH

Texas Co.'s No. 13 State, 3,391 ft. S and 1,-604 ft. W of NE cor. Sec. 107-23-32.
Rig up.
Texas Co.'s No. 15 Garden Island.
S.D. 3,786 ft.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6, Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w.
Drlg. 8,923 ft.

HACKBERRY—CAMERON PARISH

Gulf Prod. Co.'s No. 18 Erwin, 271 ft. W and 722 ft. N of SE cor. of Sec. 12-12s10w.
Bldg. derrick.
Sutton Oil Co.'s No. 2 Portier, 717 ft. S and 50 ft. W of NW cor. SW¼ SE¼ Sec. 22-12s-10w.
Drlg. 1,020 ft.
Texas Co.'s No. 14 State, 500 ft. SE of No. 13, Sec. 13-12s-10w.
Drlg. shale 2,210 ft.
Union Sulphur Co.'s No. 3 Humble (W.O.).
Milling on csg., 4,735 ft.
Yount Lee Oil Co.'s No. 13 Gulf Land, Sec. 14-12s-10w.
Drlg. shale 4,510 ft.
Yount Lee Oil Co.'s No. 1-A Gulf Land, 2,000 ft. S and 50 ft. E of the NW cor. of Sec. 22-12-10.
Rig up.

NEW IBERIA—IBERIA PARISH

Harrison & Abercrombie's No. 3 Schwing, 500 ft. N and 50 ft. E of No. 2, Sec. 24-12s-5w.
Drlg. shale 5,290 ft.
Iberia Oil Corp. and Y. D. Spell's No. 2 Bernard, 150 ft. E of No. 1, Sec. 54-12s-7e.
S.D. 3,846 ft.; salt.
Iberia Oil Co. and Y. D. Spell's No. 3.
T.D. 4,737 ft.; (corrected); I.P. 2,000 bbls. per day through ¼-in. choke.

IOWA—CALCASIEU AND JEFF DAVIS

Shell Pet. Corp.'s No. 2 Adrain.
Redrlg. hole 7,028 ft.
Shell Pet. Corp.'s No. 15 Heyd, Sec. 13-9s-7w.
T.D. 4,457 ft.; running tubing to test; I.P. 693 bbls. per day on 15/64-in. choke.
Shell Pet. Corp.'s No. 4 Adrain, 1,650 ft. S, 330 ft. E of NW cor. of lease.
Drlg. sandy shale and lime 5,784 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 7 Houssiere-Latriele.
T.D. 7,447 ft.; P.B. 7,297 ft.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 32 Lake Barre.
Drlg. shale 3,510 ft.
Texas Co.'s No. 19 Lake Barre.
T.D. 345 ft.
Texas Co.'s No. 25 Lake Barre.
S.D. 1,820 ft.
Texas Co.'s No. 14 Lake Barre.
Drlg. shale 3,074 ft.
Texas Co.'s No. 15 Lake Barre.
Drlg. shale 4,012 ft.

LAKE PELTO—TERREBONNE PARISH

Texas Co.'s No. 12 Lake Pelto.
Drlg. salt 6,173 ft.
Whitestone O. & G. Co.'s No. 1 Buckley, 300 ft. S and E of NW cor. SW SW Sec. 35-19s-16e.
T.D. 3,390 ft.; P.B. to 3,053 ft.; S.D.

LAKE HERMITAGE—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 3 Lafourche Levee Basin 1,725.
T.D. 3,194 ft.; flowed 500 bbls. of fluid per day, 95% oil and 5% wash wtr.; tubing pressure 300 lbs.; csg. pressure 360 lbs.

LEESVILLE—LAFOURCHE PARISH

Gulf Prod. Co.'s No. 4 Bernard.
Drlg. sand 3,729 ft.
Gulf Prod. Co.'s No. 6 Allen Lane, Sec. 26-21s-22e.
Derrick.
Gulf Prod. Co.'s No. 12 Bernard, Sec. 26-21s-22e.
Location.
Gulf Prod. Co.'s No. 10 Bernard, 1,833 ft. E, 958 ft. S of NW cor. Sec. 26-21s-22e.
Derrick.
Emerald Pet. Co.'s No. 10, State, west bank, 300 ft. S of well No. 1.
Location.
Emerald Pet. Co.'s No. 11 State, east bank, 227 ft. N of well No. 1.
Location.
Emerald Pet. Co.'s No. 12 State, east bank, 250 ft. S of well No. 1.
Location.
Lincoln Oil Co.'s No. 6 State.
S.D. 3,226 ft.
Lincoln Oil Co.'s No. 5 State.
Location.
Texas Co.'s No. 31 Leesville.
Drlg. shale 3,315 ft.
Texas Co.'s No. 27 Leesville.
Drlg. sand 4,013 ft.

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 6 Moss, located between No. 2 and No. 5 (W.O.).
S.D. 6,644 ft.

STARKS—CALCASIEU PARISH

Gulf Prod. Co.'s No. 37 Lutcher-Moore, 250 ft. E and 775 ft. N of SW cor. of Sec. 19-19s-12w.
Drlg. shale 3,581 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Prod. Co.'s No. 12 Wilson Cochran, Sec. 4-6s-6s.
Drlg. sand 3,070 ft.

Port Barre Oil Co.'s No. 2 Sybil, 3,080 ft. N easterly along section line, thence 55 ft. at R/A to the east, Sec. 20-6s-5e.
Drlg. shale 3,812 ft.

ROANOKE—JEFFERSON DAVIS PARISH

Classel et al's No. 1 La. Irrigation Mill Co., 695.5 ft. E and 475 ft. N of SW cor. Sec. 1-9s-4w.
Location.

Humble O. & R. Co.'s No. 2 C. N. Taylor, 1,320 ft. E, 440 ft. S of NW cor. of SW¼ Sec. 12-9s-4w.
Rig up.

Humble O. & R. Co.'s No. 1 Nelson Thomas, 880 ft. W of No. 2 Kratzer, 440 ft. N and W of SE cor. of 200-ac. tract.
Drlg. shale 5,331 ft.

Humble O. & R. Co.'s No. 2-B Devilbiss, 1,127 ft. W of No. 1-B, 440 ft. S of N line of 8½ of Sec. 11-9s-4w.
Drlg. lime 8,217 ft.

Humble O. & R. Co.'s No. 1 Clayton, 3,080 ft. S and 440 ft. W, NE cor. Sec. 10-9s-4w.
Rig up.

Shell Pet. Corp's No. 1 Jarnigan, 330 ft. E, 660 ft. S, NW cor. Sec. 12-9s-4w.
Drlg. shale 8,367 ft.

Shell Pet. Corp.'s No. 3 Kratzer, 1,320 ft. E and 440 ft. N of SW cor. of lease.
T.D. 7,597 ft.; 8⅝-in. csg. 7,584 ft.; flowed wtr. and small amount of oil.

Shell Pet. Corp.'s No. 1-B Kratzer, 660 ft. N, 330 ft. E of SW cor. of SW¼ Sec. 1-9s-4w.
Drlg. sand 2,778 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee Oil Co., 800 ft. S of No. 11, in line with Nos. 9 and 11, Sec. 12-13s-3w.
8⅝-in. csg. 8,140 ft.; T.D. 8,196 ft.; P.B. 7,360 ft.; flowed 61 bbls. of oil in 3½ hrs. and then quit flowing; swbng. 3,000 ft. of fluid in hole.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 810 fee, 1,955 ft. S, 440 ft. E of NW cor. Sec. 39-9s-10w.
Coring oil sand 1,966 ft.

Union Sulphur Co.'s No. 1 Noble (W.O.).
T.D. 5,163 ft.

Union Sulphur Co.'s No. 3 Kelly.
Drlg. shale 6,152 ft.

Union Sulphur Co.'s No. 809 fee.
Coring oil sand 3,327 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 1 Wilbert.
Rig up.

Shell Pet. Corp.'s No. 1 White Castle Shingle Co., 1,830 ft. W, 100 ft. S from NE cor. of lease.
Drlg. shale, streaks of sand 4,045 ft.

Shell Pet. Corp.'s No. 1 Adams, 2,340 ft. N. 100 ft. E of SW cor. of lease.
Reaming; T.D. 7,356 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Arkansas Fuel Oil Co.'s No. 1 Herman W. Peschel, 990 ft. out of N cor. of 167.5-ac. tract, R. Stolze Sur.
T.D. 4,010 ft.; showed S.W.

Deering & Kayser's No. 1 P. A. McClinton, 1,100 ft. from NW line and C NE and SW of 115-ac. tract in Thomas Bell Sur.
Drlg. shale 710 ft.

Paul English et al's No. 1 Felix Guhn, 1,000 ft. S, 360 ft. E from NW cor. of 71-ac. tract, D. Chomel Sur., 1 mile SE of Kinney.
Rig up.

BRAZORIA COUNTY

George Strake's No. 2 Truska, 991 ft. W of No. 1, H.T.&B. Sur., Sec. 7.
S.D. 6,000 ft.

Showers & Moncrief's No. 1 Hughey, 5,500 ft. NW of discovery well, in center of Lot 16, H.T.&B. Sur., Sec. 29, Abst. 293.
Location.

Texas Co.'s No. 1 Freeport Sulphur Co., 2,764 ft. N, 1 deg., 40 ft. W and 1,134 ft. S, 88 deg., 20 ft. W of NW cor. of S. F. Austin Sur., Abst. No. 35, being in the Conception Areola Sur.
Rotating in heaving shale; T.D. 3,767 ft.

Turnbull & Irwin et al's No. 1 W. and R. H. Allison, 2,200 ft. W, 2,732.5 ft. S from
Drlg. shale 5,100 ft.

CALHOUN COUNTY

Continental Oil Co.'s No. 2 American National Realty Co., 660 ft. from NW line, 660 ft. from NE line of Sec. 6, Blk. C, Pedro Garcia Sur.
Drlg. shale 4,813 ft.

CHAMBERS COUNTY

South Gulf Oil Co.'s No. 1 J. T. White, Luke Brian Sur., 460 ft. from N line, 460 ft. from W line of 47.9-ac. tract.
Spudded.

COLORADO COUNTY

Gulf Prod. Co.'s No. 1 A. R. Milentz, 990 ft. N along E line from SE cor. of 160-ac. lease and 330 ft. W at R/A, I.&G.N.R.R. Co. Sur. No. 23.
Drlg. 1,410 ft.

FAYETTE COUNTY

Lewis Franklin's No. 1 V. Dybala, center of 75-ac. lease, A. Thompson Sur.
Location.

FORT BEND COUNTY

C. B. Bunte's No. 1 Winston, 1,495 ft. E of W line, 2,381 ft. N of S line of 350.6-ac. tract, S. Isaacs Sur.
Location.

W. A. Shafer et al's No. 1 V. B. Bortash, 693 ft. SW of NE line and 1,003 ft. NW of SE line of Sec. 52, H.&T.C. Sur.
S.D. 2,900 ft.

George White et al's No. 1 M. M. Cravins, 1,000 ft. from N, 300 ft. W of SW cor. of survey, B.B.B.&C. Sur. No. 8.
Rig up.

GALVESTON COUNTY

Gillock Pet. Co.'s No. 2 Maco Stewart, 900 ft. N and 150 ft. W of No. 1, Alex Farmer Sur.
T.D. 1,500 ft.; S.D.

GRIMES COUNTY

Anderson & Kerr Drlg. Co.'s No. 1 R. Lueders, 500 ft. S of N line, 1,200 ft. E of W line of 320-ac. tract and survey, Blake Brantley Sur., 2½ miles SW of Plantersville.
Abd. 4,417 ft.

Hubert Holt et al's No. 1 Simon Fuqua, 1,200 ft. N of S line and 400 ft. W of E line of 177-ac. lease and survey, Moses Evans Sur.
S.D. 3,080 ft.

Dr. Marshall et al's No. 1-B Todd, 300 ft. from E line and 175 ft. from N line of 150-ac. tract in extreme NW cor. of county (25 ft. N of No. 1).
S.D. 2,005 ft.

Patton et al's No. 1 Yeager, 1,000 ft. W of E line, 170 ft. S of N line of 53-ac. tract and survey, A. Ruscolle Sur., NW of Iola.
S.D. 1,000 ft.

Roan et al's No. 1 S. W. Sealy, 3,474 ft. N of S line and 850 ft. E of W line of survey, B. F. Smith Sur., 2 miles SW of Kellum Springs.
S.D. 2,970 ft.

HARDIN COUNTY

Frazier & Greer's No. 1 Sternberger Lbr. Co., 1,325 ft. S and 400 ft. W of the NE cor. of a 115-ac. tract, J. Pearson Sur.
Drlg. shale 1,866 ft.

HARRIS COUNTY

Herbert-Still & Hooper's No. 1 Racker, 990 ft. E of W line, 4,390 ft. N of S line of J. C. Ogburn Sur.
Moving in rig.

T. S. F. Oil Co.'s No. 1 J. B. Hine, Arthur McCormick Sur., Abst. 46.
T.D. 3,524 ft.; derrick blew down; will rebuild and core deeper.

C. C. Foster et al's No. 1 H. K. Johnson, 2,000 ft. from S line and C of E and W lines of G.C.&S.F. Sur.
Drilled 25 ft. and S.D.

Johnston & Johnston's No. 1 Fee land, 330 ft. S, 300 ft. E of NW cor. of 20-ac. tract Sur., Sec. No. 5.
Drlg. shale 4,903 ft.

West Prod. Co.'s No. 1 Woodburn, 1,320 ft. E of W line, 2,145 ft. N of S line of survey, A. Whitlock Sur.
S.D. 2,900 ft.

JACKSON COUNTY

A. M. Harris' No. 1 Whitley, 800 ft. out of SE cor. of F. G. Keller Sur.
Location.

Shell Pet. Corp.'s No. 1 W. W. McCrary, 460 ft. out of SE cor. of 50-ac. tract, A. Kountze Sur.
Coring sandy shale 6,233 ft.

JASPER COUNTY

Republic Prod. Co. and Houston Oil Co.'s No. 1 Sabine Tram. Co., 330 ft. out of NW cor. Sec. 71, H.&T.C. Sur.
Drlg. shale 7,311 ft.

JEFFERSON COUNTY

Sun Oil Co.'s No. 1 Hebert & Braussard, 6,890 ft. NW along SW line and 660 ft. NE at right angles to SW line, B. Blackman Sur., Abst. No. 2.
Rig up.

LAVACA COUNTY

L. A. Douglas' No. 1 Fehrenkamp, 600 ft. from W line, 720 ft. from N line of Mitchell Sur.
Drlg. shale 1,737 ft.

LIBERTY COUNTY

R. M. Bruner et al's No. 1 N. Bell, 150 ft. from N line and 150 ft. from W line of Bell's 187-ac. tract, H.&T.B. Sur. No. 4.
Rigging up.

Extension Oil Co.'s No. 1 J. A. Lovett, 380 ft. from E and 600 ft. from S line of lease.
P. P. Deevers Sur.
S.D. 4,048 ft.

J. W. Frazier et al's No. 2 Lynott & Buffum, 466 ft. from N and E lines of 60-ac. tract in extreme SE part of survey.
James Robeson Sur.
Clearing location.

Liberty-Independent Oil Co.'s No. 1 J. M. Neal, 3,550 varas from E line and 505 varas from N line of Samuel Strong Sur.
Drlg. shale 4,110 ft.

A. L. Maxwell's No. 1 M. P. Hinchliff, 200 ft. from E line and 1,000 ft. from the N line of survey, H.&T.C. Sur., Sec. 10a.
Drlg. shale 3,580 ft.

Thomas et al's No. 1-A Eicke, 660 ft. from W line and 2,350 ft. from S line of tract in Green Sur.
T.D. 5,047 ft.; 6⅝-in. csg. at 5,029 ft.

Turnbull & Irwin's No. 1 Cox, 1,000 ft. from the E line and 200 ft. from S line of 103.2-ac. lease, F. J. G. Smiley Sur.
Location

MADISON COUNTY

Madisonville Pet. Co.'s No. 1 Cannon, 660 ft. N of S line, 440 ft. E of W line of 135-ac. tract, J. V. Phillips Sur.
Location.

MATAGORDA COUNTY

Continental Oil Co.'s No. 1 Feife, J. S. Criswell Sur., 3,000 ft. E of W line, 2,800 ft. N of S line of survey.
Location.

Cockburn Oil Co.'s No. 7 Hawkins, 150 ft. NW of No. 6 Hawkins Sur., D. McCarthy Sur.
Abd. 4,811 ft.

Dr. Griffith's No. 1 fee, 3,000 ft. from E line and 3,000 ft. from W line of Wm. H. Bell Sur.
Rig up and S.D.

Horace M. Smith, Inc.'s No. 1 Wadsworth ranch, 150 ft. out of S cor. of Lot No. 3, Blk. S. R. Fisher Sur.
T.D. 6,507 ft.; to core deeper.

MONTGOMERY COUNTY

Travis Baker et al's No. 1 Foster Estate, 1,200 ft. E of W line and 700 ft. S of N line of Blk. No. 50, J. M. De La Garza Sur.
Derrick.

Charles B. Gohlson's No. 1 Aaron Parks, 250 ft. from S line, 200 ft. from E line of Parks 139-ac. tract, J. Lindley Sur.
Drlg. shale 1,115 ft.

P. & C. Oil Co.'s No. 1 G. B. Rosebury, 466 ft. from N and E lines of 160-ac. tract, A. M. Folks Sur.
10¾-in. csg. 900 ft.; drlg. shale 1,310 ft.

Reynolds Drlg. Co. et al's No. 1 Mrs. Clara B. Stewart, 330 ft. S and E of most easterly inner cor. of 595-ac. tract, John Conner Sur.
S.D. 5,500 ft.

Trans State Oil Co.'s No. 1 Foster, 700 ft. E of W line, 3,000 ft. N of S line, Lot 27. Coring 4,652 ft.

Woodard-Smith-Cooper's No. 1 J. V. Scott, F. A. B. Wheeler Sur.
T.D. 3,640 ft.; running 5-in. csg. to 3,132 ft.; will perforate from 3,630-35 ft.; swbd. S.W. with show of gas.

ORANGE COUNTY

Blue Line Oil Co.'s No. 1 Godwin, Richard Ballew Sur., 300 ft. from E line and 150 ft. from NE line of Godwin 20-ac. tract.
S.D. 2,770 ft.

Ellis Oil Co.'s No. 1 G. W. Pell, 100 ft. from N and 300 ft. from W line of Pell tract in the J. M. Henerie Sur.
No report.

Dick Schwab's No. 1 East Texas Canal Co., 330 ft. from the N and W lines of 234-ac. tract, John Jett Sur.
Location.

POLK COUNTY

Gulf Prod. Co.'s No. 5 Trinity Co. Lbr. Co., 6,000 ft. from S and 3,000 ft. from W line of O. Peterson Sur.
Location.

Howard Daily et al's No. 1 Z. B. Knox, 1,450 ft. W and 1,920 ft. S of NE cor. of F. Chairs Sur., 16 miles NE of Corrigan.
S.D. 60 ft.

J. F. Anderson's No. 1 E. L. Duke (O.W.D. D.), 400 ft. from E and 350 ft. from S of SW cor. of P. Michelick 50-ac. lease, Abst. 59, P. J. Mineral Sur.
Waiting on a new mud pump; T.D. 5,304 ft.

Humble O. & R. Co.'s No. 1 Texas Long Leaf Lbr. Co., 466 ft. from NE line and 2,250 ft. from the NW line, Sec. 21, A. Viesca Sur.
Drlg. shale 912 ft.

J. W. Leggett et al's No. 1 Bergman, C of 294-ac. tract, or 1,100 ft. W of H.E.&W.T. R.R., J. T. Pinkney Sur.
Rig up.

Dick Schwab's No. 1 Lynch, 330 ft. out of NW cor. of 200-ac. tract in the George Jameson Sur.
Location.

E. A. Thompson's No. 1 Haynes, 990 ft. out of NW cor. of 320-ac. tract and survey, J. Whitmire Sur., E of Leggett.
No report.

REFUGIO COUNTY

Cecil Hagen et al's No. 1 Edith Clarkson, 1,736 ft. from N line, 3,820 ft. from E line of J. Coughlin Sur.
Location.

Magnolia Pet. Co.'s No. 1 Woods, 330 ft. from S and W lines of S. Turner Sur.
Drlg. shale 6,255 ft.

ROBERTSON COUNTY

H. L. Patton's No. 1 H. Ely, located on a 616-ac. tract, A. Manchola Sur.
Drlg. sand 1,860 ft.

SAN JACINTO COUNTY

Shell Pet. Corp.'s No. 1 K. Moore, 5,400 ft. from W line, 1,250 ft. from S line of lease, T. F. De Rumayor Sur.
Bldg. derrick.

Ralph Sturam et al's No. 1 R. B. Love et al, 475 ft. S of N line and 2,000 ft. W of E line of 177-ac. tract, Drury McGee Sur.
Moving in rig.

TRINITY COUNTY

Gulf Prod. Co.'s No. 1 Trinity Lbr. Co., 4,500 ft. W of E line, 1,200 ft. N of S line of survey, J. M. Gomez Sur.
Location.

VICTORIA COUNTY

Costa Oil Co.'s No. 1 Schovjasa, 330 ft. out of N cor. of Lot No. 14, Wm. Rupley Sur.
Drlg. shale 2,700 ft.

L. A. Gillespie and Superior Oil & Gas Co.'s No. 1 R. W. Brandt, 330 ft. from NE line, 330 ft. from NW line of tract No. 11, Henderson & Pickering Subd., Wm. Rupley Sur.
Cmtd. surface csg.

L. A. Gillespie and Superior Oil & Gas Co.'s No. 1 John Janis, 330 ft. from SW line of survey and on the SE line of Nancy Dean Sur.
Location.

Gillespie and Superior O. & G. Co.'s No. 1 Farber, 330 ft. from N and E lines of Lot 6, Nancy Dean Sur.
Drlg. shale 4,000 ft.

Magnolia Pet. Co.'s No. 1 Henderson & Pickering, E offset to discovery well, Wm. Rupley Sur.
Moving in material.

WALKER COUNTY

Boone Bros.' No. 1-D Texas Long Leaf Lbr. Co., 330 ft. E and 275 ft. N of SW cor. of 112.6-ac. tract, Mary Milsap Sur.
Drlg. shale 3,325 ft.

S. E. Gray's No. 1 Winzell, 1,200 ft. N and 1,000 ft. E of most southerly S line of survey.
S.D. 4,032 ft.

WASHINGTON COUNTY

Powers Prod. Co.'s No. 1 Boenker, 550 ft. S, 250 ft. W from NW cor. of Dodson 160 acres, J. Newman Sur.
Rig up.

WHARTON COUNTY

Texas Co.'s No. 2 Pierce Estate, 2,425 ft. S, 31 degrees 20 ft. E, 4,400 ft. N, 58 deg. 40 ft. E from W cor. of Pierce Estate Land, I.&G.N.R.R. Sur. No. 39.
Rig up.

SOUTH LOUISIANA

ACADIA PARISH

Continental Oil Co.'s No. 1 T. Ortego, 990 ft. S, 500 ft. E of NW cor. SW¼ Sec. 28-7s-2w.
Rig up.

Humble O. & R. Co.'s No. 1 American Rice Mills, 660 ft. S and 1,320 ft. W from NE cor. Sec. 27-10s-1e.
W.O.C. 7,832 ft.

AVOYELLES PARISH

Bell Drlg. Co.'s No. 2 Thompson, 450 ft. S, 360 ft. E, NW cor. NE¼ Sec. 11-2n-5e.
Rig up and S.D.

Southern State Pet. Co.'s No. 1 Boyette, 330 ft. N and 330 ft. E of SW cor. Sec. 28-3n-5e.
S.D. 3,887 ft.

BEAUREGARD PARISH

Chew & Kirby's No. 1 Long Bell Lbr. Co., 330 ft. S and W of C of NE¼ Sec. 24-2s-8w.
Drlg. shale 2,912 ft.

Richardson & Martin's No. 1 Southwest Lbr. Location.

CALCASIEU PARISH

Fred Oil Co.'s No. 2 Faizst, 262 ft. E and 83 ft. S of NW cor. SE¼ Sec. 26-8s-10w.
Drlg. shale 2,375 ft.

Fohs Oil Co.'s No. 5 Castle, 660 ft. S. of No. 1 Castle
Drlg. shale 5,120 ft.

Nicholas McCaleb's No. 1 Grey, 2,200 ft. S 1,200 ft. E of NW cor. Sec. 22-8s-12w.
S.D. 850 ft.

Texas Co.'s No. 3 Nickerson, 2,739 ft. N, 3,750 ft. W of SE cor. Sec. 12-19s-8w.
Rig up.

Texas Co.'s No. 2 Nickerson, 2,304 ft. N, 4,322 ft. W of SE cor. NW sec. 12-9s-8w.
Drlg. shale 4,702 ft.

Union Sulphur Co.'s No. 2 Reeves-Mayo.
T.D. 6,727 ft.; 6⅝-in. csg. 6,717 ft.; drlg. plug; I.P. 8 bbls. per hr. through ¼-in. choke.

Union Sulphur Co.'s No. 1 Castle, 326 ft. N and E of NW Sec. 13-9s-8w.
P.B. 4,701 ft.

Union Sulphur Co.'s No. 1 Buhler, 1,465 ft. N and 425 ft. W of SE cor. Sec. 11-9s-8w.
T.D. 7,388 ft.; P.B. 6,427 ft.; S.D. 6,651 ft.

Union Sulphur Co.'s No. 6 State.
Drlg. shale 5,574 ft.

Union Sulphur Co.'s No. 2 Powell, 1,279 ft. S, 1,621 ft. E of NW cor. Sec. 12-9s-8w.
Location.

Union Sulphur Co.'s No. 9 State.
Derrick.

Wheeler Oil Corp.'s No. 1 School Lot, 1,768 ft. E, 1,325 ft. N of SW cor. Sec. 16-9s-7w.
Drlg. 980 ft.

CAMERON PARISH

Magnolia Pet. Co.'s No. 1 J. B. Broussard, 330 ft. E and S, out of NW cor. of the SW¼ of SE¼ of Sec. 13-12s-9w.
Drlg. shale 5,620 ft.

Steinberger Pet. Co.'s No. 1 Drew, 330 ft. out of NW cor. NE¼ of Sec. 26-10s-11w.
Location.

EAST BATON ROUGE PARISH

Superior Oil & Prod. Co.'s No. 1 Duplanter-Community, 1,500 ft. westerly along the N line from the NE cor. of D. A. and E. A. Duplanter's 130.7-ac. tract, thence 330 ft. at R/A.
Rig up.

EAST FELICIANA PARISH

Thompson Creek Oil Co.'s No. 1 Fannie Noland, 2,600 ft. E and 1,580 ft. N of SW cor. Sec. 70.
Drlg. shale 1,625 ft.

EVANGELINE PARISH

Basile's No. 1 Haas, 1,680 ft. S of N line, 350 ft. W of E line of NE cor. Sec. 14-6s-2w.
Drlg. 1,421 ft.

IBERIA PARISH

Texas Co.'s No. 1 State Fausse Point.
Drlg. shale 3,670 ft.

JEFFERSON PARISH

Lincoln Oil Co.'s No. 1 Rigaud, Sec. 28-21s-25e.
S.D. 7,039 ft.

Texas Co.'s No. 1 Bayou St. Dennis, 20,907 ft. S, 4,853 ft. E of NW cor. of Twp., Sec. 19-17s-24e.
T.D. 9,572 ft.; recovered 2,500 ft. of oil on D.S. test; to set csg. at 9,558 ft.

LAFOURCHE PARISH

Southern Sulphur Corp.'s No. 1 D. L. Lagraize, 800 ft. E of NW cor. of Lot 7, thence 250 ft. S of Sec. 26-21s-22e.
Spudded and shut down.

PLAQUEMINES PARISH

Venice Corp.'s No. 1 Burras.
S.D. 2,119 ft.

RAPIDES PARISH

J. B. Evers' No. 1 G. Wettermark, 540 ft. S and 520 ft. E, NW cor. NE SW Sec. 35-6n-2e.
Location.

Williams-Terrell & Day's No. 1 Armstrong & Murphy, 286 ft. N and 300 ft. W of SE cor. Sec. 24-5n-1w.
S.D. 2,345 ft.

ST. BERNARD PARISH

Danciger's No. 1 Battles, 836 ft. N, 2,193 ft. W of SE cor. Sec. 135-14s-14e.
Drlg. sand 6,325 ft.

Emerald Oil Co.'s No. 1 Eugenia Land Co., 1,922 ft. S, 1,720 ft. W of NE cor. Sec. 31-13s-15e.
Rig up.

ST. LANDRY PARISH

C. B. Bunte's No. 1 Thistle Waite Lbr. Co., 7,590 ft. W and 1,980 ft. S of NE cor. Sec. 68-5s-4e.
Spudded.

ST. MARTIN PARISH

Texas Co.'s No. 1 State-Plumb Bob, 3,107 ft. E and 2,154 ft. N of SW cor. Sec. 9-8s-7w.
Drlg. shale 7,310 ft.

TANGIPOHA PARISH

R. A. Conklin's No. 1 Lake Superior Piling Co., 200 ft. W and N of SE cor. Sec. 19-5s-9e.
Drlg. sand 4,612 ft.

VERMILLION PARISH

Moore Bros.' No. 1 Brussard, 350 ft. S of N line, 250 ft. E of W line, NE cor. Sec. 32-11s-3e.
S.D. 4,054 ft.

NEW AND IMPROVED EQUIPMENT

Rector Bradenhead Is for Relatively Low Pressures

A new type of bradenhead for comparatively low-pressure fields is announced by the Rector Well Equipment Co., Inc., Fort Worth, Tex., giving this manufac-

turer a complete range in pressures. This latest addition is type L head, for the 1,500-pound pressure class. It embodies the same safety features as the high-pressure and type M Rector heads except that it has no recessed coupling.

The split rings are extra heavy and sit down at a 45-degree angle to form a metal-to-metal shut-off. The extra-heavy split-ring construction makes the pipe safe against collapse below the thread from its own weight.

The type L head, repackable under pressure, as are the two higher-pressure Rector heads, is made of high-grade cast steel. The design is full-opening, having inside bottom threads, thereby avoiding any reduction in area between strings.

Baker Tools Headquarters Now Established in Tulsa

The office, warehouse, service departments and equipment stocks of Baker Oil Tools, Inc., formerly in Oklahoma City, have been removed to 312 East Fourth Street, Tulsa. The company, whose main

office and factory are in Huntington Park, Calif., will continue to be represented in Oklahoma City by R. C. Glover.

The Tulsa branch, in charge of P. V. McGivern, covers Oklahoma, Kansas and the Texas Panhandle. Its service departments, warehouse facilities and merchandise stocks have been expanded.

"Foremanship Development," a 60-page manual offering a simplified plan for the training of foremen and other supervisors, is announced by the Industrial Relations Department, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. It is based on experience of the Westinghouse and allied companies. The price is $1.

Among the Equipment Houses

Dowell, Inc., is erecting a warehouse in Tulsa. William J. Russell is district manager and Philip J. Lenhard treater. The warehouse will contain the Dowell Mid-Continent laboratory under the direction of William Fry. The Dowell field laboratory will still be available in any part of the Mid-Continent area. A new Dowell station has been opened at Great Bend, Kans., and the one at Hobbs, N. Mex., has been enlarged.

—

Bernard H. Porter has joined the technical department of the Acheson Colloids Corp., 444 Madison Avenue, New York.

—

The new address of the Turbo-Mixer Corp., specializing in mixing and agitating equipment, is 247 Park Avenue, New York.

—

Sperry-Sun Well Surveying Co., 1608 Walnut Street, Philadelphia, Pa., has moved its California district office from the Petroleum Securities Building, Los Angeles, to 549 East Byxby Road, Long Beach. The company has opened a branch office at 1237 K. Street, Bakersfield, Calif.

—

The new plant of the Carbide and Carbon Chemicals Corp., Whiting, Ind., has been placed in operation. It occupies part of a 30-acre tract between the main lines of the New York Central and Pennsylvania Railroads, and faces a main motor highway between Chicago and the East.

—

S. L. Stents, 2611 East Fifteenth Street, Tulsa, is a recently appointed district sales representative of the A. M. Byers Co., Pittsburgh, Pa. He will cover the Mid-Continent area.

—

Arthur C. Hays, 1415 Carondelet Building, New Orleans, La., has been appointed sales representative for the Edward Valve & Manufacturing Co., Inc., East Chicago, Ind.

—

Ralph A. Terrell has joined the Ingersoll Steel & Disc Co., division of Borg-Warner Corp., at its West Pullman (Chicago) plant as chief engineer, succeeding S. S. Battles, who resigned to become president of the Midwest Stamping and Enameling Co., Morrison, Ill.

The Boiler Engineering Co., of Newark, N. J., has discontinued business and in the future the Beco-Turner baffles will be installed by the Plibrico Jointless Firebrick Co., Chicago.

—

The board of directors of the Westinghouse Electric & Manufacturing Co. elected George H. Bucher a vice president. His headquarters will be in New York.

—

Wade Stevens has been made West Texas and eastern New Mexico representative for J. H. McEvoy & Co., Houston, Tex., with headquarters in Midland.

—

J. B. Rittenhouse, vice president of the Synthane Corp., has transferred his headquarters from Chicago to the main office of the company in Oaks, Pa.

—

J. B. Templeton, southwestern representative for Templeton, Kenly & Co., Chicago, has been transferred to the New York office of the company.

—

S. H. Blackwood, formerly assistant district sales representative in New York territory for the Reading Iron Co., has been made district sales representative in southern territory, with headquarters in the Continental Building, Baltimore, Md. He succeeds W. J. White, who resigned.

—

The Slip-Not Belting Corp., Kingsport, Tenn., has been made distributor of transmission equipment in that area for the Medart Co., St. Louis, Mo.

—

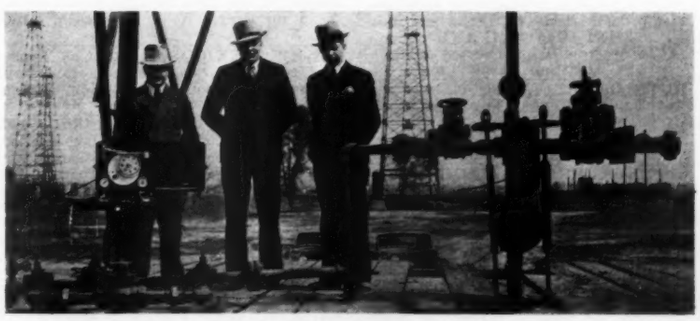
The Fluor Corp., Los Angeles, Calif., has appointed E. J. Hudson, Houston, Tex., its representative for Texas, Louisiana, and Arkansas.

—

The Seattle, Wash., district sales office of Republic Steel Corp. has been removed to the White-Henry-Stuart Building. C. D. Winter continues in charge. Archie Rider, transferred from the Youngstown offices, has been added to the Seattle staff.

—

Joseph W. Royer, works manager of the Medart Co., St. Louis, Mo., has been elected vice president in charge of manufacturing.



Intermitter for controlling the flow cycle of gas-lift systems, manufactured by the Oklahoma Brass & Iron Works, controlled by a Taylor time cycle clock. Installation in the Oklahoma City Field. Left to right: A. D. Johnson, sales representative, Oklahoma Brass & Iron Works, Oklahoma City; R. E. Clarridge, sales engineer, Taylor Instrument Companies, Rochester, N. Y.; D. J. Condit, sales representative, Taylor Instrument Companies, Tulsa.

Men Well Known in the Equipment Field

L. C. BRADFORD

Rector Well Equipment Co., Inc., Fort Worth, Tex., has appointed L. C. Bradford district sales representative in the Texas Panhandle territory, with headquarters in Pampa.

Mr. Bradford's experience in the equipment business began in 1918. For six years he represented as branch manager the Bradford Rig & Reel Co. in Haynesville, La.; Smackover, Ark., and Mexia, Tex. Later he was district manager in the Texas Panhandle for American Tank for seven years, and he was Black, Sivalls & Bryson representative in this same district for one year.

Axelson Perry Plunger Is Said to Stop Gas Trouble

Solving the gas problem in the pumping of petroleum represents a forward step in plunger valve design. Many methods to eliminate gas locks in pumps have been tried.

The new Axelson Perry plunger, made by the Axelson Manufacturing Co., Los Angeles, Calif., eliminates the unwanted gas pocket or trap around the plunger bottom valve, in no way restricting the full passage of fluids. The entire valve for the Perry plunger, including the hardened ball guide, seal and ball and bushing, is completely contained within the plunger. These plungers are furnished in the regular, superservice and chromium-plated types.

Control Provided by 600 Welding Current Settings

The Universal Staid-Arc welder made by Universal Power Corp., 1719 Clarkstone Road, Cleveland, Ohio, is announced as another forward step in welder design for staid and steady dependable arc welder performance. Easy control of welding current is said to be provided in a total of some 600 welding current settings. The machine delivers its full welding range under the proposed new standards of N.E.M.A. whether the welder is started cold or has been thoroughly warmed up in heavy welding service.

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Harry A. George
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Telephone Trinity 7391.

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Lock Box 475, McLean, Texas.

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BARTON ARCH territory of Western Kansas. Cos. wanting protection should write to J. E. Leader, Wakeeney, Kansas.

HAVE in Kentucky several undrilled and untested structures leased for oil and gas. Can get big production. People wanting to develop write me. F. L. JAMES, Box 214, Albany, Ky.

ORDOVICIAN West Texas test and several Woodbine sand and Gulf Coast wildcats now under way where you stand chance to win 10 to 50 for one. Leases, Royalties. E. CROFT, Proctor, Texas.

FOR SALE: Oil Leases and royalties in Lea and Roosevelt Cos., N. Mex., and Andrews, Gaines and Yoakum Cos., Tex. Write J. W. Wallrich, Lovington, N. M.

PRODUCING forty acre lease, one well, fully equipped, Pottawatomie County, Okla. For Sale, bargain. O. B. Askins, 534 Com. Exch. Bldg., Oklahoma City, Oklahoma.

NEW MEXICO—My weekly scout report furnishes complete and reliable information on New Mexico developments. Send for copy. W. S. Patterson, Santa Fe, N. Mex.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

FOR SALE: 3,000 acre drilling block in Permian basin, on air line between two shallow pools, Howard-Glasscock and Mertzon. Is on good structure. The Humble and other large companies own block very close. Probability is good for oil at 1,400 to 1,600 ft. and 1,800 to 2,200 ft. Price $5 per acre, 50 cents rental. H. B. Opp, c/o Roberts Hotel, San Angelo, Texas.

Tex. Okla. royalty, leases, bought, sold, promptly, wholesale, retail. J. H. Smith, 204 Isham Bldg., Longview, Tex.

TREGO and Graham Co., Kansas, oil leases and Royalties, at very low prices. J. E. LEADER, Wakeeney, Kansas.

FOR SALE or lease 84 acres, Escambia County, Florida. S. F. Rasley, 13406 Terry Ave., Detroit, Michigan.

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HOBBS POOL, LEA COUNTY, N. M., is developing into one of the world's largest oil fields. We specialize in leases and royalties. Reliable information on field development furnished free. SOUTHWESTERN INVESTMENT CO., Bob Childers, Manager, Hobbs, New Mexico.

WILL furnish maps and information and can provide acreage to anyone willing undertake drilling wildcat fields in Saskatchewan. We pioneered these fields and have results of five years' survey work available for right parties willing to do test drilling. PETROLEUM ENGINEERING COMPANY, LTD., 301 Great West Permanent Building, WINNIPEG, Manitoba, Canada.

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MILLER, 207½ E. Third St., Tulsa, Okla. Prospectus preparation and presentation. General assistance in all marketable matters. Correspondence invited.

Ethical Texas oil lawyer, working out important case in proven area will make interesting arrangement to induce financial help; prob. need about $3000.00; deal with principal only. Address Box G-675, The Oil and Gas Journal, Tulsa, Okla.

CAPITAL—An experienced dependable broker will aid in financing project of merit. AMSTER LEONARD, 316 South Clark St., Chicago.

WANTED LOAN $110,000, for 5 years, 4% interest. Security first mortgage on 9,000 acres that has splendid oil indications. Is on head of San Saba river in West part of Menard County, Texas. Six miles running water, two big everrunning springs, good house. Thirty miles of high-netting fence, many hundred fine pecan trees. Worth today $18 per acre. Atlantic and other major oil companies have leases adjoining and close by. Big drilling campaign is getting under way in this area. Will give one-fourth participating royalty under entire 9,000 acres to party making loan. None of tract is now leased. No dry holes. Oil is expected in the Pennsylvania at 1,800 to 3,500 ft., in Ordovician at 3,800 to 4,500 ft. Money loaned on land such as this is absolutely safe. This together with the many good indications of oil makes this proposition doubly attractive to men of vision. H. B. Opp, c/o Roberts Hotel, San Angelo, Texas.

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